2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction and Project Overview

The history and background of the Proposed Action have been described in Chapter 1 of this Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/SEIR).

The Proposed Action is to complete the Channel Deepening Project as authorized by Congress in WRDA 2000. This chapter describes details of the alternatives proposed to accomplish the Proposed Action, which involves disposing approximately 3.0 million cubic yards (mcy) of remaining dredge material[1] at new disposal sites.

2.2 Project Objectives

The primary objectives of the Proposed Action that were presented in the October 2005 SNOI/SNOP are to:

- Provide additional dredged material disposal capacity to complete the Channel Deepening Project; and
- Maximize beneficial use of dredge material by construction of additional lands for eventual terminal uses and to provide environmental enhancements at locations in the Port of Los Angeles (the Port or POLA).

The USACE and Port received comments on the SNOI/SNOP from various agencies and interested parties. Based on these comments, the USACE and Port elected to revise the objectives as follows:

- Complete the Channel Deepening Project for dredging of navigation channels and berthing areas up to the depth of -53 feet MLLW;
- Provide disposal capacity for placement of approximately 3.0 mcy of remaining dredge materials; and
- Provide disposal capacity for placement of contaminated dredge materials unsuitable for open water disposal through construction of a CDF.

[1] The 3.0 mcy of remaining dredge material that requires disposal includes material within the Main Channel and berths that has not yet been dredged, as well as approximately 0.815 mcy of material that was previously dredged and now exists as surcharge on the Southwest Slip at Berth 100 (Table 2-1).

2.3 Purpose and Need

The purpose of the Proposed Action is to complete the Channel Deepening Project by providing 3.0 mcy of additional disposal capacity for dredge material and maximizing beneficial use of the dredge material within the POLA. The Proposed Action is needed to allow the new generation of deeper draft container ships access to Port terminals along the Main Channel of the Port. Additional disposal sites are needed because disposal sites developed for dredge material from the Channel Deepening Project are inadequate for the total volume of sediments that require removal from the Main Channel and adjacent berth areas to complete the project (see Section 2.3.2 for details regarding the increased volume).

The remaining material needed to be dredged to complete the Channel Deepening Project presents an opportunity for using the dredge material as construction material to enhance terminal efficiency and safety and/or environmental enhancement. The present needs and opportunities for immediate use of the dredge material at the Port are:

- Creation of an additional 5 acres of land at the Northwest Slip to enhance terminal efficiency and safety;
- Expansion of the Cabrillo Shallow Water Habitat (CSWH) to enhance shallow water habitat in the outer harbor area;
- Creation of an Eelgrass Habitat Area in the CSWH to further enhance shallow water habitat in the outer harbor area; and
- Placement of contaminated dredged material associated with the Channel Deepening Project at Berths 243-245 to create a CDF.

2.3.1 Status of Construction of the Channel Deepening Project

The Channel Deepening Project construction contractor has completed placement of dredge material in all of the approved project disposal areas, including: Southwest Slip Areas 1 and 2; the CSWH; Pier 400 Submerged Material Storage Site; Pier 300 Expansion; and the Eelgrass Restoration Area adjacent to Pier 300. The total volume of material dredged is approximately 12.7 mcy, which also includes approximately 2.0 mcy of sand mining for construction of the Pier 300 Expansion Site, which was backfilled with material from channel dredging that was less suitable for creating a landfill. A detailed summary of construction activity and progress is included in Appendix A.

2.3.2 Need for Additional Disposal Sites

Additional disposal sites are needed because disposal sites developed to place dredge material from the Channel Deepening Project are inadequate for the total volume of sediments that require removal from the Main Channel and adjacent berth areas to complete the project. It is estimated that approximately 3.0 mcy of dredge material needs to be disposed to complete the Channel Deepening Project. The estimated volume of material to be disposed is based on the status of construction as of November 2005 and includes: approximately 1.025 mcy to be dredged from the Main Channel, approximately 0.675 mcy to be dredged from berth deepening, and approximately 0.815 mcy of material that was previously dredged from the Channel Deepening Project and temporarily placed on the Southwest Slip Disposal Area 1 as surcharge. This volume also includes material needed to be dredged for foundation preparation of rock dike structures to construct the new disposal sites, as described in Section 2.4. Table 2-1 summarizes the volumes of remaining material requiring new disposal sites. Figure 2-1 shows the source locations of the remaining 3.0 mcy of material that needs to be disposed.

Table 2-1 Remaining Volumes of Material Required to Complete Channel Deepening Project

Source of Material/Capacity Requirement	Volume (mcy)
Channel Areas	+ 1.025
Berthing Areas	+ 0.675
Subtotal Design Grade	1.700
Additional capacity for material placement adjustments (bulking)	+ 0.259
Subtotal of Capacity Required for Dredge Material	1.959
Surcharge on Southwest Slip (removed to average +13 ft MLLW)	+ 0.815
Total Capacity Required	2.774
Total Capacity Required (rounded up to nearest 1.0 mcy)	3.00

* This volume does not include dike trenching volumes as described in Section 2.6.1

A volume of additional capacity needed due to material placement adjustments is estimated based on consideration of the behavior of the type of materials to be dredged, how they are to be dredged, how and where they are to be placed, and the amount of time allowed for construction. For the construction methods utilized and the physical properties of dredge materials at POLA, the capacity (or fill volume) is larger than the cut volume (dredge volume). This is called the "bulking factor." Additional capacity to accommodate bulking is included in the total capacity estimate. This estimate reflects experience with the completed channel deepening work, which also reflects a reasonable period of construction time for settlement of bulked materials, and a representative typical shoaling volume. Finally, the surcharge volume is added in. Since dry movement of this material is anticipated, no bulking factor is applied.

USACE and EPA understand that minor quantities of material below the project depth of -53 feet MLLW plus overdepth may be removed in isolated areas during dredging. However, these volumes should be more than offset by material left in place above the project depth. The dredging volumes in Table 2-1 are therefore considered worst case volumes. There is no incentive for the dredging contractor to dredge deeper than necessary, as no payment will be made for the removal of such material. In addition, as noted in the January 2006 USACE policy, "Dredging below the maximum depth and beyond the maximum width characterized and evaluated in the environmental documentation for a Federal navigation project or permit may be subject to environmental compliance enforcement."

Additional dredging may be required as part of constructing dike structures or other reasons associated with the specific disposal locations. This is discussed as appropriate in Section 2.6.1.

2.3.3 Contaminated Sediments

The slips at Berths 243-245 contain contaminated sediments from past shipyard operations (Weston, 2005). Concentrations of the following compounds have been detected in surface and subsurface sediments within Berths 243-245 at concentrations above the Effects Range-Median (ER-M)[2]: mercury, lead, zinc, polychlorinated biphenyls (PCBs), tributyltin (TBT) and polynuclear aromatic hydrocarbons (PAHs) (Weston 2005). Additionally, similar levels of these contaminants have been identified in sediments within the Main Channel as well as in berths that remain to be dredged in the vicinity of Berths 127-131 and Berths 136-140 (Kinnetic Labs & Fugro, 2007). It is estimated that the volume of contaminated sediments to be removed as part of the Proposed Action is approximately 0.08 mcy (Kinnetic Labs & Fugro, 2007).

It should be noted that the levels of contaminants in these sediments are well below State of California Title 22 Total Threshold Limit Concentrations (TTLC), and are therefore not considered a hazardous waste under state or federal regulatory standards (Kinnetic Labs & Fugro, 2007). However, the presence of these contaminants makes these sediments unsuitable for open water disposal.

[2] ER-M is part of the Effects Range sediment quality guidelines (SQG) established by the NOAA (NOAA, 1999). The guidelines were developed to identify concentrations of contaminants associated with biological effects in laboratory, field, or modeling studies. The ER-M is the concentration equivalent to the fiftieth percentile of the compiled study data. Sediment concentrations above the ER-M are "frequently" associated with adverse effects (USEPA, 2008).

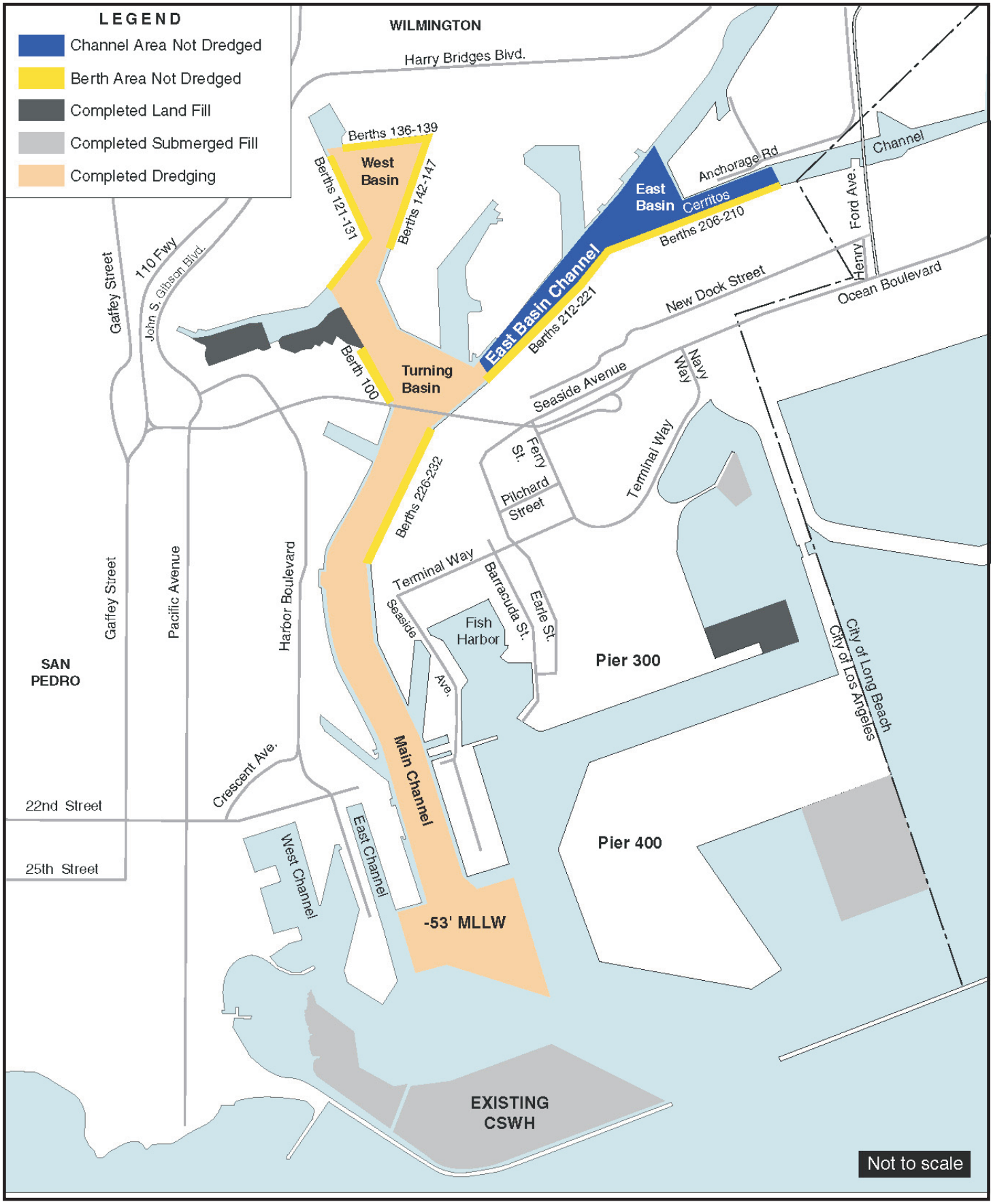


Figure 2-1
Alternative 1:
Remaining Dredging and Surcharge Removal

Page 2 for figure 2-1

The Los Angeles Regional Contaminated Sediments Task Force (CSTF), which is led by the California Coastal Commission (CCC) and Los Angeles Regional Water Quality Control Board (LARWQCB), was formed to create a long term strategy for managing contaminated sediments within parts of Los Angeles and Long Beach, as authorized by California Senate Bill (SB) 673. Over a seven-year period, the CSTF developed the Los Angeles Contaminated Sediment Long Term Management Strategy (Anchor, Everest, and AMEC, 2005). The Long Term Management Strategy established a goal of 100 percent beneficial reuse of contaminated dredged materials. As such, ocean disposal is to be considered as a last option, after beneficial reuse of the material "as is" (i.e. untreated) at a port fill site, treatment of the material for beneficial reuse, or some other direct beneficial reuse of the material have been evaluated or attempted (Anchor, Everest, and AMEC, 2005). This goal complies with the requirements of the Clean Water Act (CWA) and Marine Protection, Research and Sanctuaries Act (MPRSA) to maximize beneficial reuse of dredged materials and minimizing discharges of dredged materials to the aquatic or ocean environment.

2.4 Disposal Options

2.4.1 Background of Development of Disposal Options

As presented in the NOI/NOP, dated November 4, 2004, and the SNOI/SNOP, dated October 21, 2005, potential beneficial uses of dredge material within the Port of Los Angeles, Port of Long Beach, and LA-2 were examined by the USACE and the Port. The plan formulation process resulted in the development of four alternatives in accordance with the project objectives. These alternatives included:

1) Port Development,
2) Limited Port Development,
3) Minimal Port Development, and
4) Ocean Disposal and Minimal Port Development.

The four alternatives consisted of different combinations of the following disposal sites: Pier 300 40-acre expansion area, Consolidated Slip, Bird Nesting Island, CSWH, Eelgrass Restoration Area (near Pier 300), Berths 243-245, Northwest Slip, and Ocean Disposal sites LA-2 and LA-3. Details related to each disposal option and each alternative not considered for further evaluation are provided below in Section 2.4.3.

Based on comments received during the scoping process and coordination with agencies, USACE and the Port re-examined and modified the disposal alternatives. As a result, dredging

and disposal activities at the Pier 300 40-acre expansion area, Consolidated Slip, Cerritos Channel widening, and Bird Nesting Island have been eliminated from further consideration because they did not meet project objectives, were found to be infeasible, or did not reduce environmental impacts.

Placing material at Pier 300 is not being pursued because the Pier 300 open water area is a special aquatic site due to presence of eelgrass[3] and is currently an important foraging site for Federal and State endangered species, the California least tern, and avoidance of impacts to these resources at this time has been considered.

Creation of the Bird Nesting Island is not considered because it is not certain that the least tern would relocate from the designated nesting site on Pier 400 to the nesting island. In accordance with the Least Tern Nest Site Agreement, establishment of the island as the designated least tern nesting site requires significant use of the site for nesting by the least tern, as determined by several years of monitoring. Should the site not meet these requirements, the NOAA Fisheries has indicated that the island would need to be restored to marine aquatic habitat. Therefore, the USACE and the Port decided to eliminate this disposal site from further consideration.

Based on coordination with USEPA, placing material at the Consolidated Slip has been eliminated from consideration as part of completing the Channel Deepening Project due to uncertainty related to completion of USEPA superfund requirements within the time frame of completing the Channel Deepening Project.

2.4.2 Viable Disposal Options

The alternatives proposed to complete the Proposed Action have been modified to incorporate comments from the scoping process and agency concerns. There are a limited number of areas currently available in the POLA area for placement of dredged material. These options are based on consideration of the Port's present needs and opportunities for using dredged material. The options are summarized below in Table 2-2 and shown on Figure 2-2. Based on consideration of

[3] Special aquatic sites are defined at 40 C.F.R. Part 230, Subpart E.

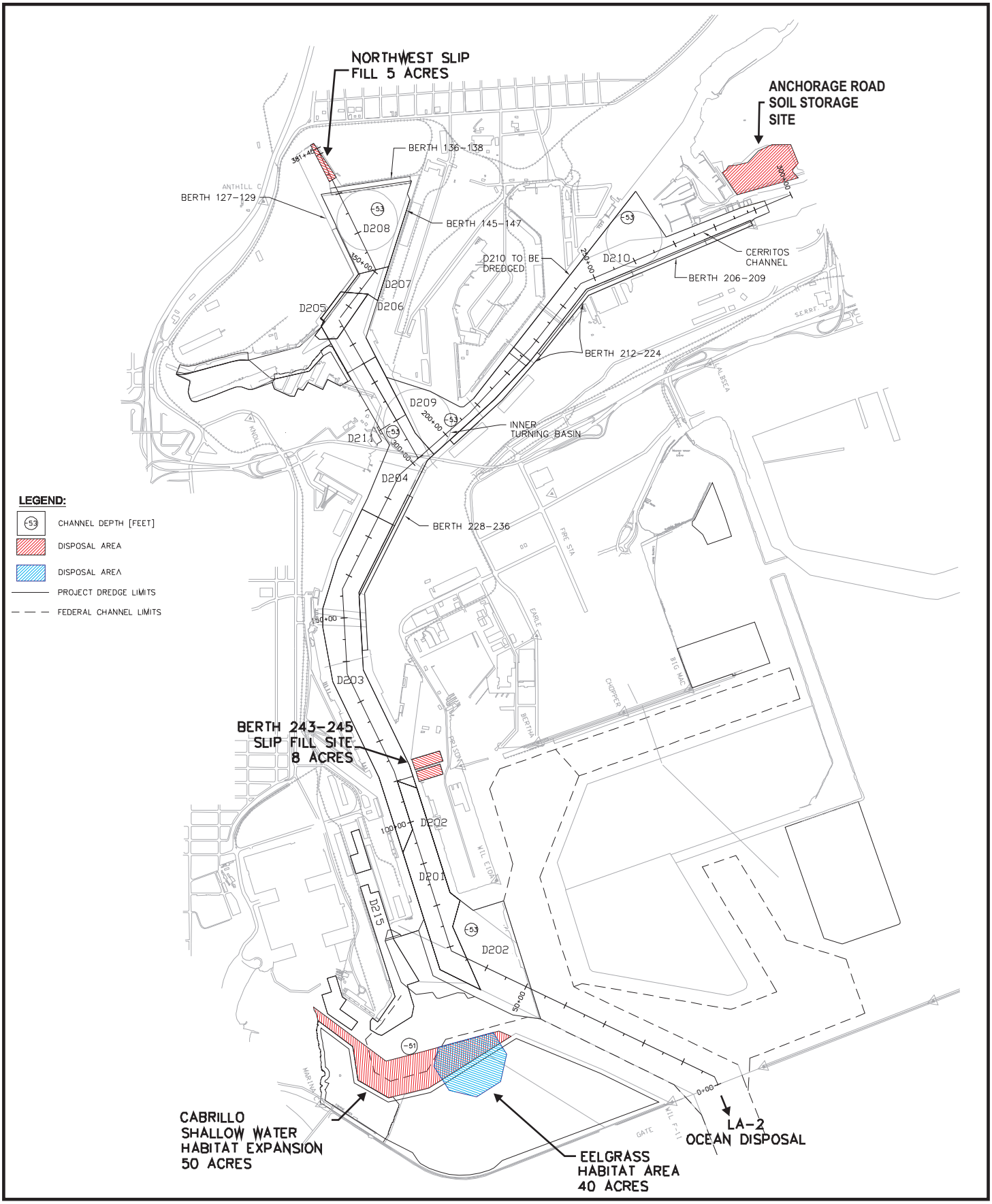


Figure 2-2
Proposed Disposal Options

page 2 for figure 2-2

the project objective to make beneficial use of the remaining dredged material, the following viable disposal options have been developed.

- **Disposal Options Associated with Terminal Efficiency and placement of contaminated material at the CDF**
  - Creation of 5 acres of land at the Northwest Slip to improve terminal efficiency
  - Placing and capping contaminated dredge material at a new CDF at Berths 243-245
- **Disposal Options Associated with Environmental Mitigation and Enhancements**
  - Expansion of the CSWH in the Outer Harbor area
  - Creation of an Eelgrass Habitat area in the Outer Harbor area
- **Other Options**
  - Ocean disposal at LA-2
  - Anchorage Road Soil Storage Site (ARSSS) for disposal of contaminated material

Details related to construction of each disposal site are presented in Section 2.6.1.

Table 2-2 Summary of New Disposal Sites

Disposal Option	Acreage	Fill Volume (mcy)(a)		Project Objectives Met	
		Dredge Material	Dike Trenching	Port Development	Environmental Enhancement
Berths 243-245 (d)	8	0.368	0.090	8 acres of land (b)	CDF to cap existing contaminants and other contaminated dredged material
Northwest Slip	5	0.128	0.050	5 acres of land for terminal efficiency	None
CSWH Expansion Area	50	1.700	0.040	None	Increase shallow water habitat area
Eelgrass Habitat Area (c)	40	0.800	NA	None	Enhance shallow water habitat
ARSSS (d)	NA	0.080	NA	None	Disposal for sediments unsuitable for open water
LA-2	NA	Remaining material	NA	None	None

(a) Total fill volume at each disposal site is the total of the dredge material from the Channel Deepening Project as well as the dredging needed to construct dike foundations.
(b) A reasonably foreseeable use for the new land area at this site has not been determined. However, as discussed in Section 3.14 this site would likely be developed in the future for an industrial use under a future discretionary action and environmental analysis.
(c) The Eelgrass Habitat Area would be constructed over 24 acres of existing CSWH and over 16 acres of the proposed 50-acre CSWH Expansion. Therefore the Eelgrass Habitat Area would not add any additional shallow water habitat. The Eelgrass Habitat Area would not require trenching for dike foundations.
(d) Site would be used for material unsuitable for unconfined open water disposal.
NA = Not Applicable

Berths 243-245

The Berths 243-245 disposal site, which consists of two open water slips covering approximately 8 acres, was part of the former Southwest Marine Shipyard site. This site, along with a vacant adjacent parcel to the north, Berth 240Z, was occupied by a number of ship builders and repair

operations for nearly 100 years. No tenant currently occupies the site. As discussed above in Section 2.3.3, the slips at Berths 243-245 contain contaminated sediments from past shipyard operations (Weston, 2005). This option includes creating a CDF for the existing contaminated materials within Berths 243-245, as well as for contaminated dredge material associated with completing the Channel Deepening Project which is unsuitable for open water disposal. A contaminated sediment management plan would be developed in cooperation with the CSTF and other State and Federal agencies prior to moving and disposing of the contaminated sediments. This disposal site is shown in Figure 2-3.

Construction of a CDF involves placing contaminated dredged materials inside a diked area to create land. CDFs are constructed with containment and control measures such as lining, covering and effluent control (Figure 2-4). Primary issues with nearshore CDF disposal include: (1) coastal land availability and costs; (2) wave protection; (3) short term effects from effluent discharge during and after filling; (4) solids retention during filling; (5) contaminant containment structure design; and (6) long term end use of the site after closure. CDFs are constructed with contaminated material as fill material and capped with clean material. CDFs have been constructed by the Port of Los Angeles (POLA) and the Port of Long Beach (POLB) for many years and have been the standard method for disposing of contaminated dredge sediments.

Contaminated dredged materials that are unsuitable for unconfined open water disposal but not considered a regulated hazardous waste are eligible for inclusion in harbor and nearshore landfills where the fills are CDFs (Anchor, Everest, and AMEC, 2005). The mobility of contaminants within the dredged materials tends to decrease significantly with compaction of the fill over time or by mechanical means that reduces the leaching potential of the constituents present within the fill mass. Such effects are particularly pronounced with materials containing sufficient amounts of fine grained material, which is the case with most of the contaminated dredged sediment generated in the region (Anchor, Everest, and AMEC, 2005).

Northwest Slip

Disposal of dredge material at the Northwest Slip disposal site would result in construction of a 5-acre landfill (Figure 2-5) that would allow realignment of the wharf roadway which would facilitate safer and more efficient truck and equipment movement. Both development of the five acres of new land as backlands and operation of the five acres in conjunction with the rest of the Berth 136-147 Terminal have been assessed in the Berth 136-147 [TraPac] Container Terminal Project Final EIS/EIR, and is summarized in Chapter 3.14 of this SEIS/SEIR.

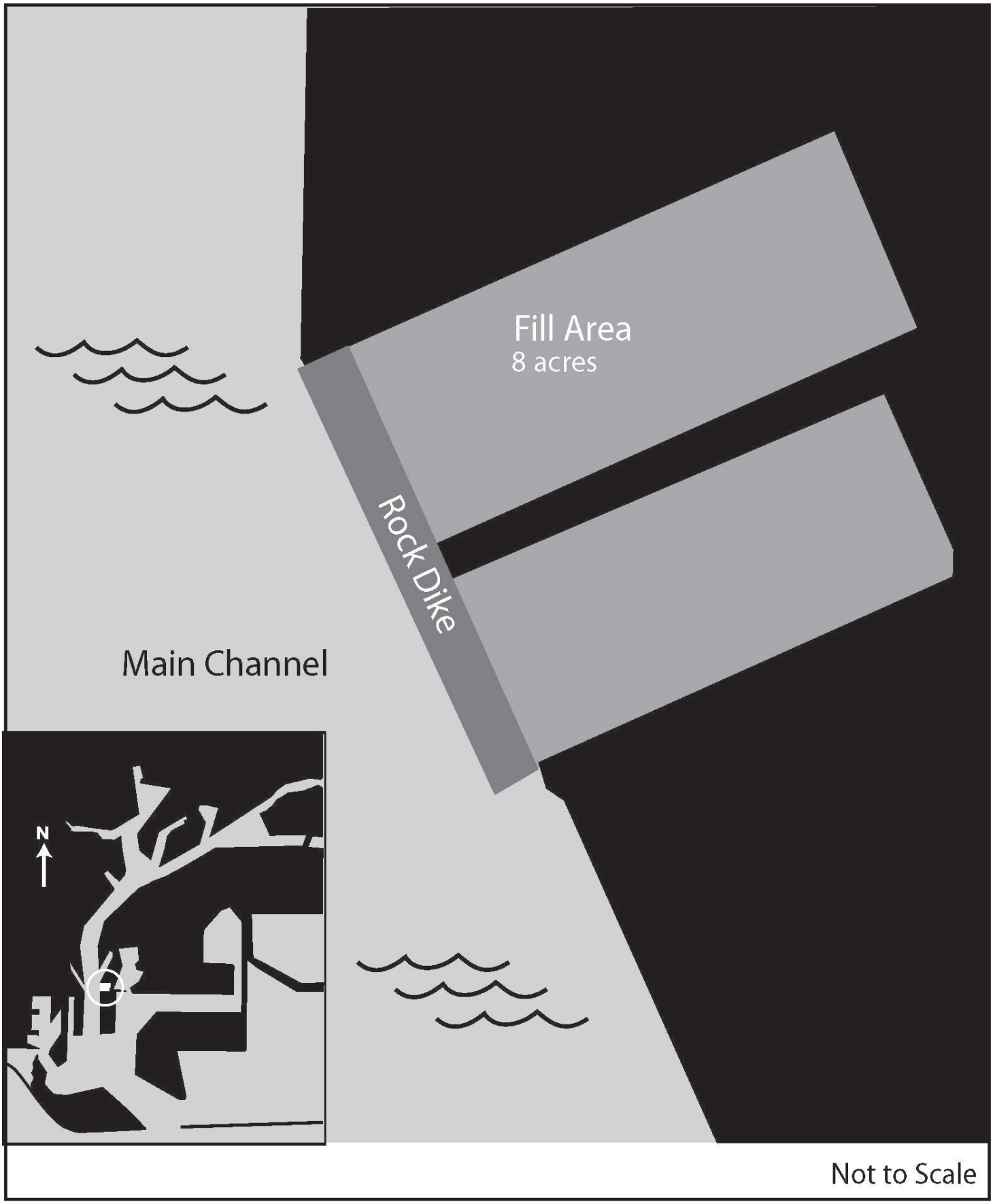
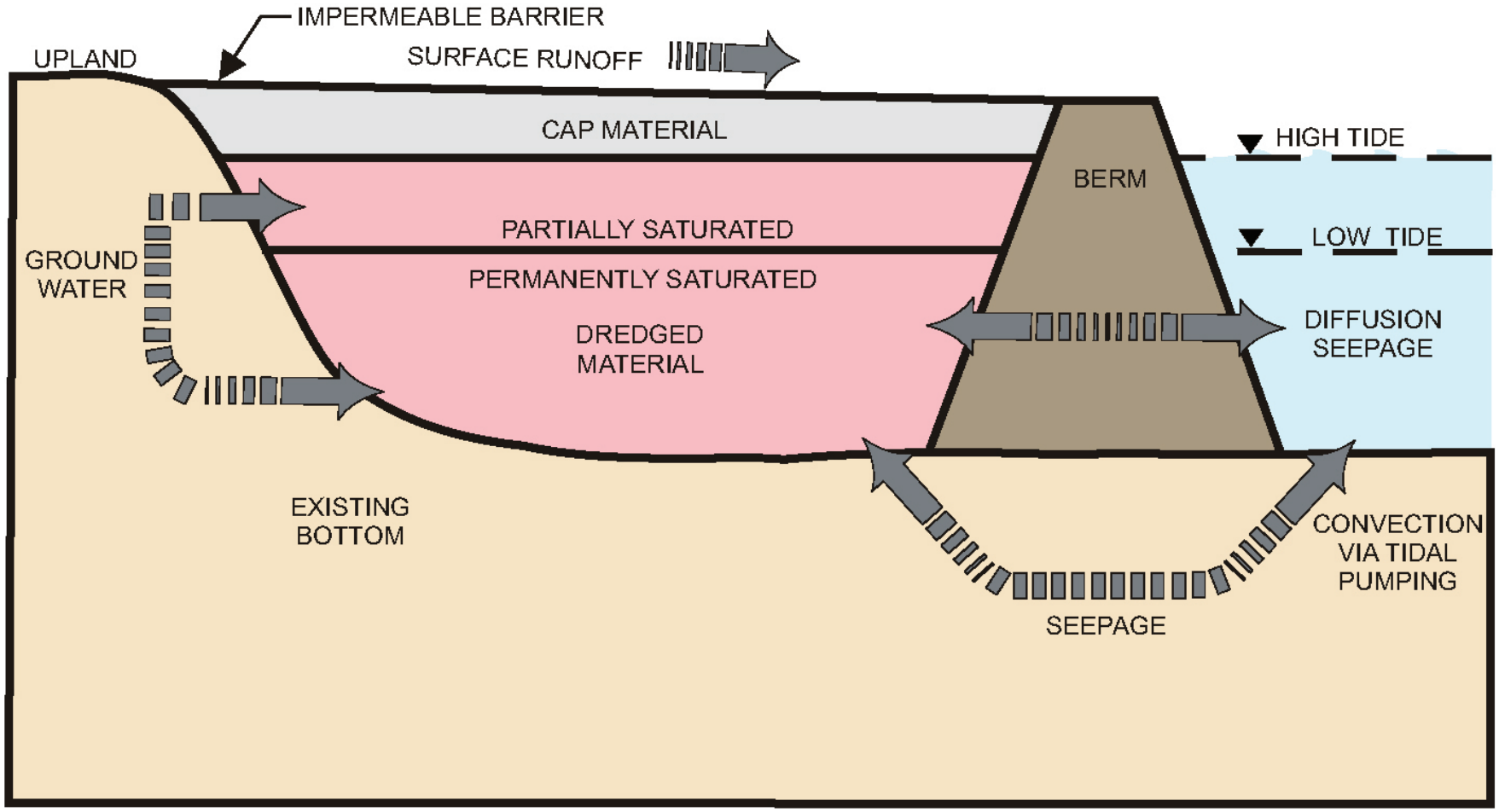


Figure 2-3
Berths 243-245 Disposal Site Location



CONFINED DISPOSAL FACILITY (CDF)

Not to scale

Figure 2-4
Confined Disposal Facility Design

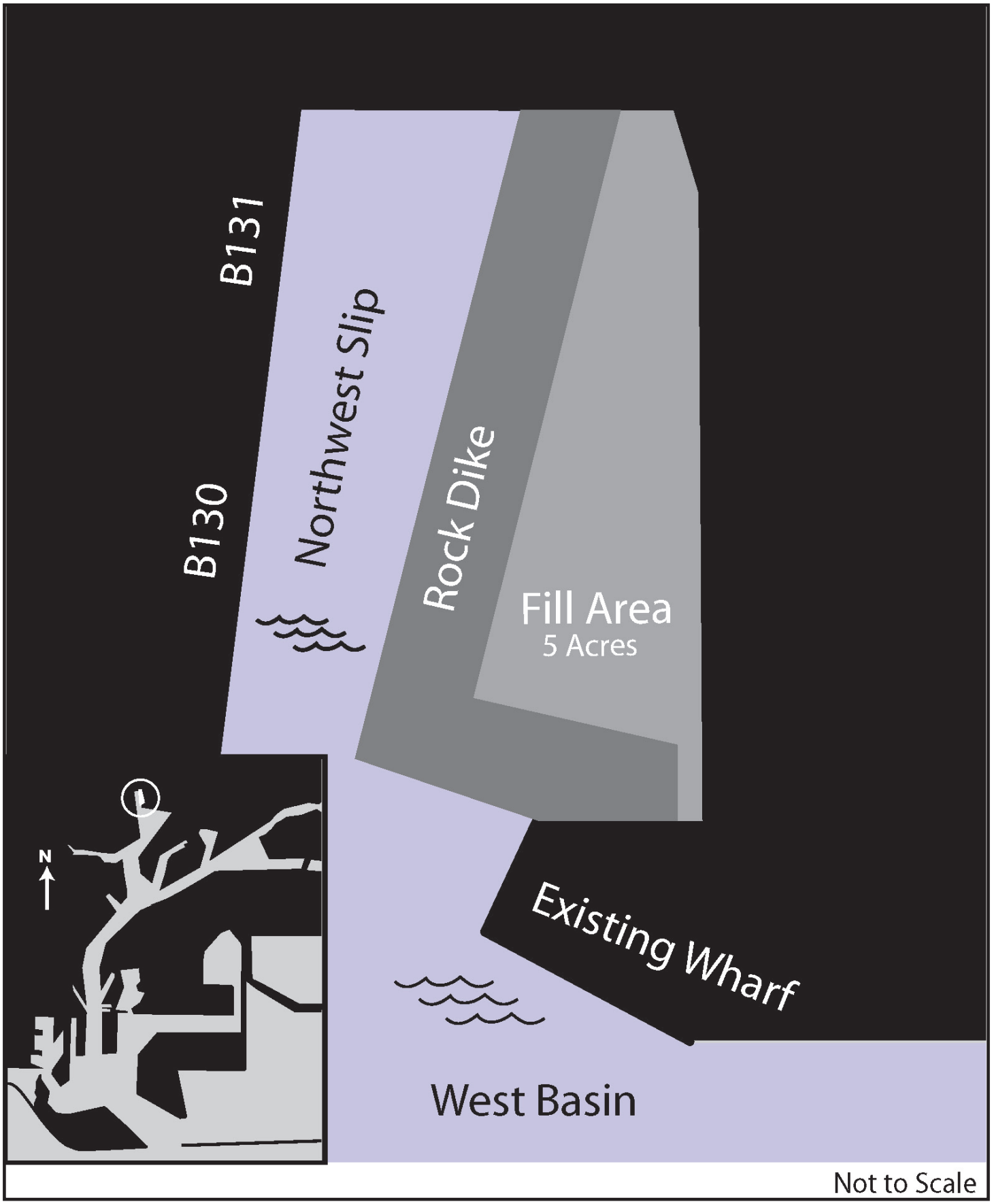


Figure 2-5
Northwest Slip Disposal Site Location

Development and operation of the five acres would not allow for any increases in throughput at the terminal because the five acres would be used to improve vehicle access to the wharf area not for additional container storage. There is an immediate need to improve the wharf roadway configuration at Berths 136-139 at the TraPac terminal. The current configuration requires trucks and other container movement equipment to make a 180-degree turn to access the wharf area, which increases risks to worker and vehicle safety as well as traffic and truck maneuvering delays. The additional area would also allow additional wheeled operations to occur for container movement instead of the less efficient Rubber Tired Gantry (RTG) operation. The Berth 136-147 terminal is “berth limited" meaning that the terminal capacity is controlled by the ability to bring cargo over the wharf (e.g., the number and size of ships that can be accommodated.) As a result, addition of more land would not result in an increase to the terminal's maximum capacity. Because there would be no increases in throughput, operation of the five acres in conjunction with the entire Berth 136-147 terminal, would not result in any environmental impacts as compared to the terminal without the five acres (Section 2.4.2.1 and Appendix I of the Berth 136-147 [TraPac] Container Terminal Project EIS/EIR).

CSWH Expansion Area

Approximately 1.700 mcy of dredge material would be used to raise a 50-acre area of deep water at the existing CSWH to -15 feet MLLW to provide additional shallow water habitat as shown in Figure 2-6. The material would be supported by a new submerged dike along the north side of the existing CSWH. Approximately 0.040 mcy of sediment would be dredged for the foundation of the containment dike. Construction of this site would raise the existing sea bottom, which ranges between –40 ft to –50 ft MLLW, up to a new elevation of -15 ft MLLW, creating new shallow water habitat. The additional 50-acre expansion of the CSWH would increase the value of habitat in the Outer Harbor area.

As discussed in Section 1.12, the POLA has a system for compensating loss of open water and marine habitat through the use of credits from mitigation banks. The use of these mitigation banks is governed by Memoranda of Agreement among POLA, USFWS, NOAA Fisheries, CDFG, the Bolsa Chica Bank, POLB, California Resources Agency, California State Lands Commission, California Coastal Conservancy, USEPA, and USACE. The POLA maintains mitigation banks in the Inner harbor, Outer Harbor and Bolsa Chica. Credits are applied by different ratios for each bank, as detailed in section 1.12.

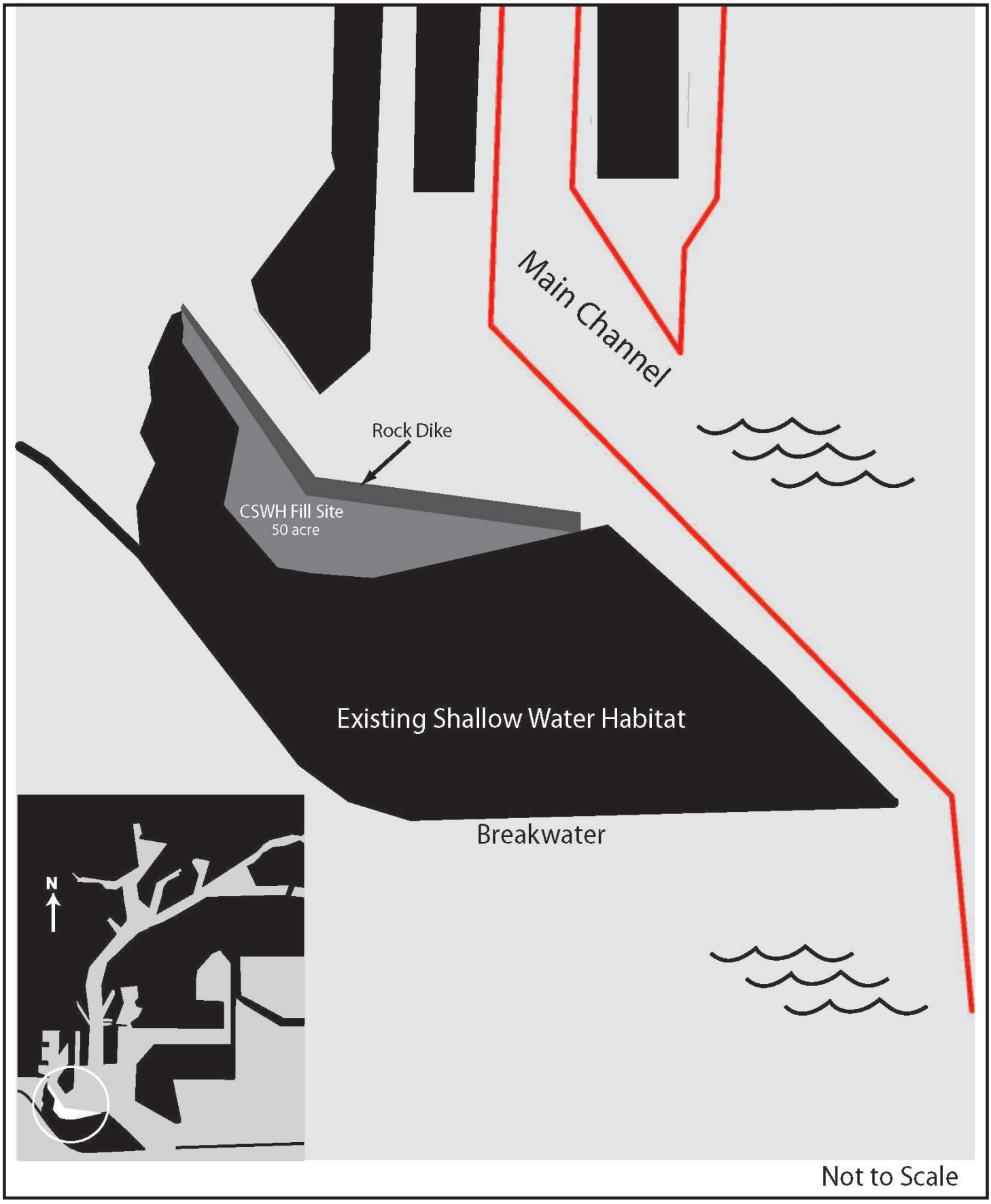


Figure 2-6
CSWH Disposal Site Location

Eelgrass Habitat Area

Approximately 0.800 mcy of dredge material would be used to construct approximately 40 acres of shallow habitat for establishment of an Eelgrass Habitat Area at the existing CSWH and the proposed CSWH Expansion area. The existing water depths at the CSWH range between -15 to -20 ft MLLW. The water depths at the completed Eelgrass Habitat Area would range from approximately -2 to -6 ft MLLW (sloping from lower elevation to higher elevation from north to south) to allow for adequate establishment of eelgrass habitat. It is anticipated that adding the Eelgrass Habitat Area to the CSWH would provide enhanced biological value and encourage bird foraging. The proposed 40-acre Eelgrass Habitat Area would overlap approximately 16 acres of the proposed 50-acre CSWH Expansion, as shown on Figure 2-7. Approximately 24 acres of the Eelgrass Habitat Area would be constructed on the existing CSWH Area, which is at an elevation of -15 feet MLLW. The Eelgrass Habitat Area would be constructed in the shape of a polygon. In order to protect the Eelgrass Habitat Area from erosion from short period storm waves, a rock dike would be constructed around the perimeter of all south, east, and west facing sides of the Eelgrass Habitat Area (DMJM Harris, 2007). The rock dike crest elevation of the above-water sections will vary from +12 to +14 feet MLLW. The dike on the north side would be constructed to an elevation of approximately -6 feet MLLW to maintain water circulation within the area.

Ocean Disposal

Another viable disposal option involves disposal of suitable material at LA-2, as shown in Figure 2-8. This option would be used for any remaining materials for which a beneficial use could not be determined. Disposal of material at LA-2 would be consistent with the USEPA regulations for managing ocean dumping in accordance with the Marine Protection, Research, and Sanctuaries Act. This site is located approximately 5.8 miles south-southwest of the entrance to Los Angeles Harbor on the outer continental shelf margin. The depth of this site ranges from approximately -360 ft MLLW to - 1,115 ft MLLW. Up to 1.4 mcy of dredge material may be disposed of at this site annually (USACE and USEPA, 2004).

Anchorage Road Soil Storage Site (ARSSS)

This disposal option involves disposing approximately 0.080 mcy of contaminated sediments from the Channel Deepening Project at the ARSSS. The ARSSS is an upland soil storage site that has been approved by the LARWQCB for disposal of dredge materials that are unsuitable for open water disposal. The site encompasses approximately 31 acres and was modified for use as a soil storage facility in the early 1990s. The site is used on an infrequent basis, largely for

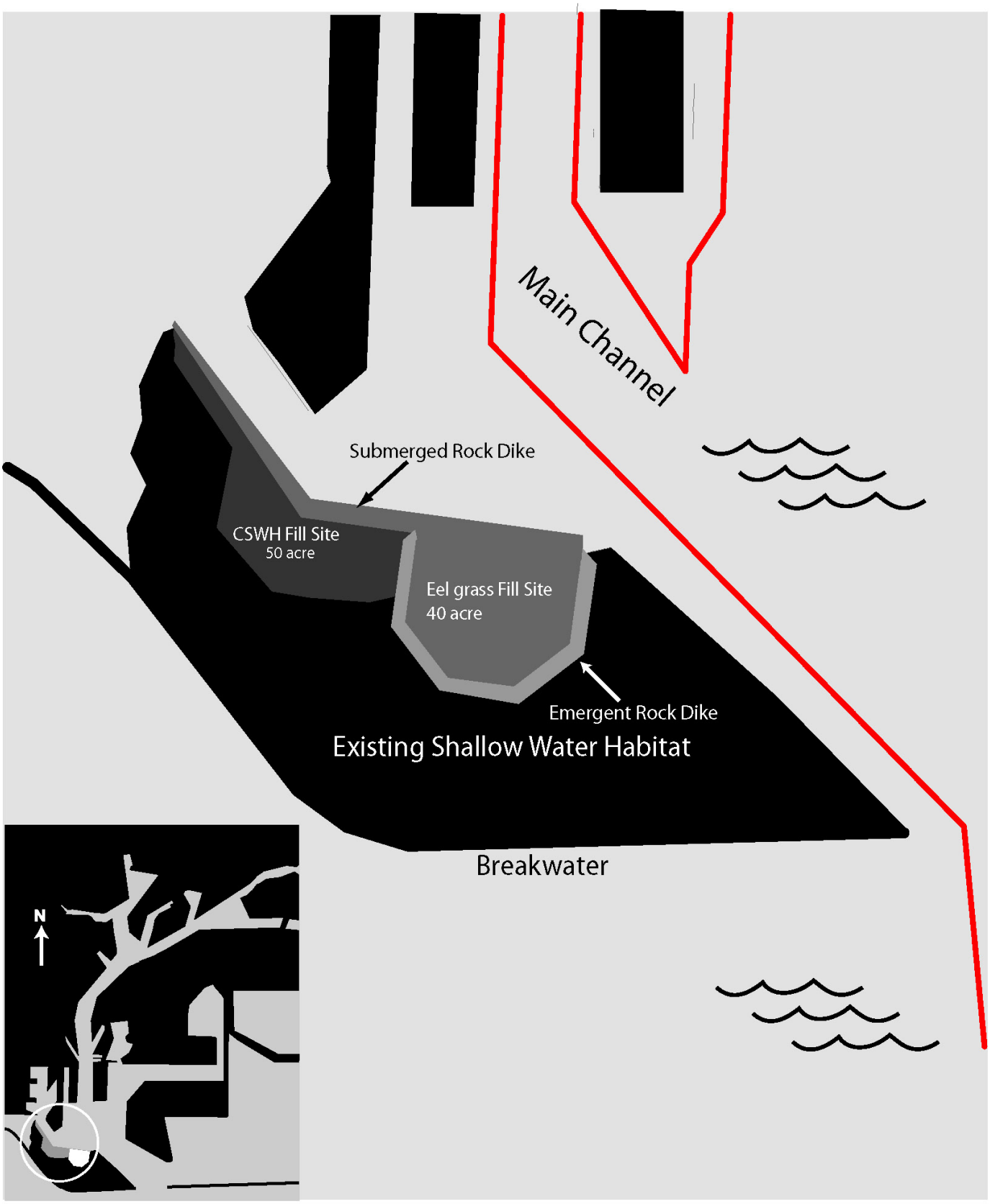


Figure 2-7
CSWH Expansion / Eelgrass Habitat Area Disposal Site Location

Figure 2-8
Ocean Disposal Site LA-2

maintenance dredging (typically every two to three years) and other miscellaneous capital improvement projects. The dredge material deposited at this site is material that after testing has been found to be unsuitable for open water disposal but is not classified as hazardous waste. This disposal site is shown in Figure 2-9.

2.4.3 Alternatives and Disposal Sites Eliminated From Further Consideration

All viable disposal options and alternatives were considered in developing the Proposed Action. These include alternatives presented in the NOI/NOP dated November 4, 2004, and the SNOI/SNOP dated October 21, 2005, which included:

(1) Alternative 1 – Port Development: Disposal at Pier 300 Expansion (40 acres), Berths 243-245 (8 acres), Consolidated Slip Cap (20 acres), Northwest Slip (5 acres), Eelgrass Restoration (20 acres), Cabrillo Shallow Water Habitat Expansion (35 acres), Ocean Disposal at LA-2 or LA-3 (remaining material).

(2) Alternative 2 – Limited Port Development: Disposal at Pier 300 Expansion (28 acres), Berths 243-245 (8 acres), Consolidated Slip Cap (20 acres), Northwest Slip (5 acres), Eelgrass Restoration (20 acres), Cabrillo Shallow Water Habitat Expansion (35 acres), Bird Nesting Island (15 acres), Ocean Disposal at LA-2 or LA-3 (remaining material).

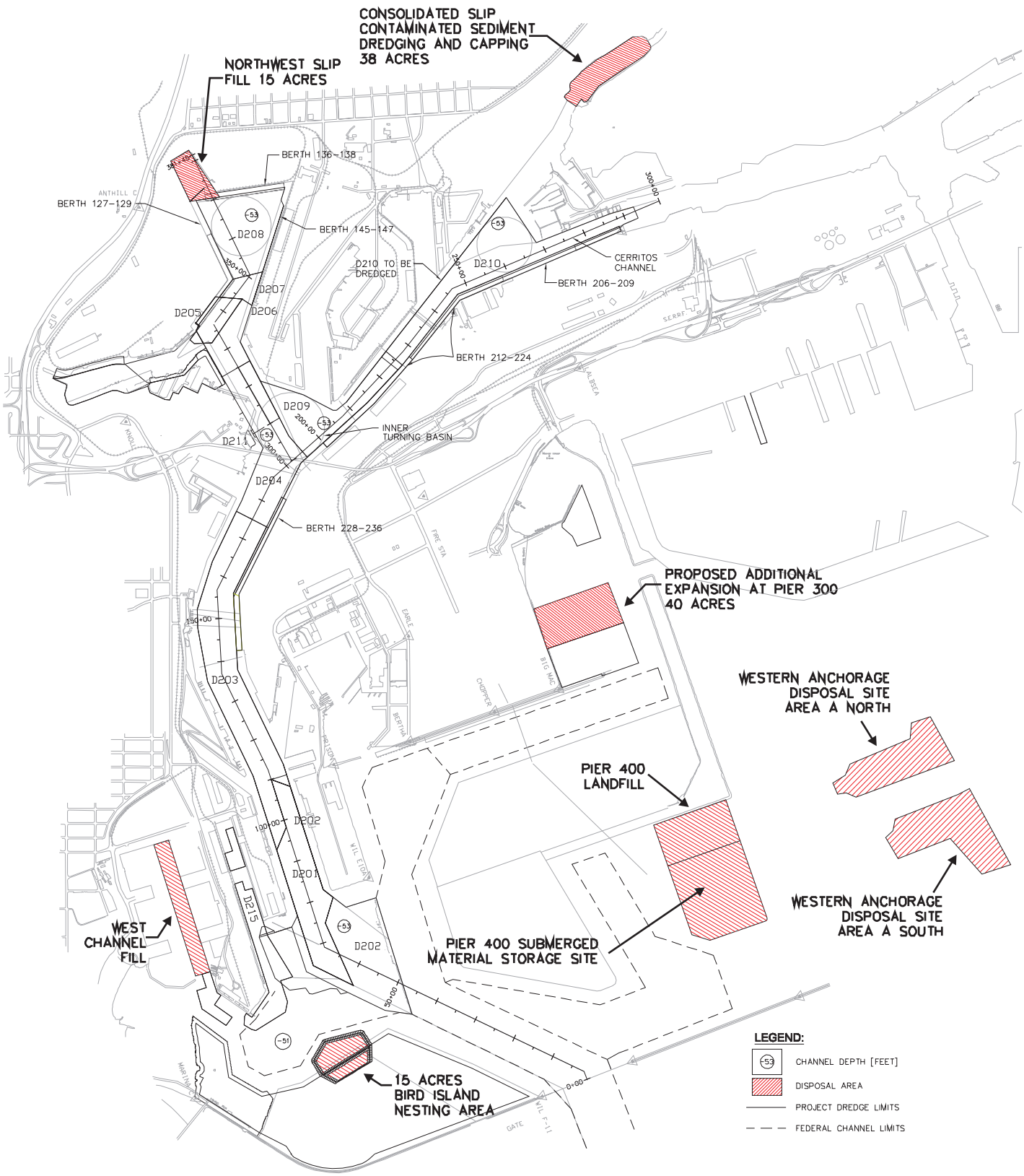
(3) Alternative 3 – Minimal Port Development: Disposal at Berths 243-245 (8 acres), Consolidated Slip Cap (20 acres), Cabrillo Shallow Water Habitat Expansion (35 acres), Bird Nesting Island (15 acres), Pier 400 Submerged Material Storage Site (120 acres raised from –15' to –10' MLLW), Ocean Disposal at LA-2 or LA-3 (remaining material).

(4) Alternative 4 – Ocean Disposal/Minimal Port Development: Disposal at Berths 243-245 (8 acres), Consolidated Slip Cap (20 acres), Ocean Disposal at LA-2 or LA-3 (remaining material).

Based on further planning and analysis of each of the disposal sites, several options were determined to be infeasible, as described in more detail below, and removed from consideration. Once these options were removed from consideration, the alternatives were adjusted and narrowed to those described in Section 2.5. The disposal options considered but rejected and reasons for elimination, are discussed below and shown in Figure 2-10.

Pier 300 Expansion. An existing 40-acre landfill adjacent to Pier 300 is currently undeveloped. The reasonably foreseeable use of this existing 40-acre area includes construction of a 1,000-foot-long wharf and development of the backlands for use as container storage to accommodate projected increased container throughput capacity and improve efficiency of terminal operations. Dredge material from the Proposed Action presents an opportunity to expand the existing 40-

Figure 2-9
Anchorage Road Soil Storage Site



0 2000 4000
Scale in Feet

N

Figure 2-10
Disposal Sites Eliminated from Consideration

Page 2 for figure 2-10

acre landfill at Pier 300 to allow more efficient operations at the existing terminal and future expansion. A new landfill at this location could also be used as a CDF for sediments that are unsuitable for open water disposal.

This disposal option is not being pursued because the Pier 300 open water area is a special aquatic site due to the presence of eelgrass and is currently an important foraging site for Federal and State endangered California least tern. Therefore this disposal option is not considered to be feasible at this time.

Bird Island Nesting Area. A population of California least tern has inhabited a portion of the recently constructed Pier 400 for use as a nesting area, thus preventing originally intended development of this area for Port use. The island would be located at the CSWH and would include creation of an inter-tidal area with planted eelgrass to optimize the habitat area for foraging. If the island proved successful, the existing Pier 400 least tern nesting area could be relocated to allow development of the Pier 400 site as originally intended.

Creation of the Bird Nesting Island is not considered because it is not certain that the least tern would relocate from the designated nesting site on Pier 400 to the nesting island. In accordance with the Least Tern Nest Site Agreement, establishment of the island as the designated least tern nesting site requires significant use of the site for nesting by the least tern, as determined by several years of monitoring. Should the site not meet these requirements, the NOAA Fisheries has indicated that the island would need to be restored to marine aquatic habitat which would result in additional disruption to aquatic resources. Therefore, the USACE and the Port decided to eliminate this disposal site from further consideration.

Consolidated Slip. The Consolidated Slip, located at the mouth of the Dominguez Channel, has been the recipient of upstream contaminated runoff and is part of a USEPA Superfund Cleanup Program due to the presence of contaminated sediments. This area is the largest remaining toxic hotspot in the harbor. The Proposed Action presented an opportunity to remove the contaminated sediments from this area and isolate them in a CDF at Berths 243-245. Additionally, up to 0.600 mcy of clean sediments from the Channel Deepening Project would be used to cap remaining contaminated sediments in the Consolidated Slip. Additionally, a sediment basin at a depth of –40 feet MLLW would be constructed at the downstream reach of the Consolidated Slip area to facilitate trapping and removal of future sediment deposition. An approximately one-acre landfill comprised of contaminated sediments capped with clean material would be placed on the lower southeast section to improve hydraulic flow through the outlet and sediment basin.

After extensive coordination with USEPA, this option is not feasible as part of the Proposed Action due to uncertainty related to completion of USEPA superfund requirements within the timeframe of completing the Channel Deepening Project. The Port will continue planning for this project in coordination with USEPA. Should this option comply with the schedule for completion of the Channel Deepening Project, a future NEPA/CEQA analysis will be prepared.

Pier 400 Submerged Material Storage Site (SMSS). The existing Pier 400 SMSS includes about 120 acres in the POLA outer harbor area between Pier 400 and the breakwater. The area has been filled to –15 feet MLLW. Further disposal at this area will likely involve water circulation and water quality impacts related to operation of the existing Terminal Island Treatment Plant outfall. Accordingly, this option is not feasible within the timeframe needed to complete the Channel Deepening Project.

Backfill of Over-dredged Areas. There were several reaches of the Channel Deepening Project where dredging operations resulted in deepening areas beyond the authorized –53 feet MLLW depth plus two-foot over-depth limit. At the request of USEPA, consideration was given to the possibility of backfilling these areas. Current surveys indicate that much of these areas have shoaled in from side slopes and other material movement such that depths are significantly less than previous surveys and are within a reasonable two to three feet tolerance of the authorized depth. It is expected that long-term natural movement of material from currents and ship wash would cause a more uniform depth along the channel reaches. Further, a backfilling operation to fill in limited depths along these reaches would be difficult to control and would possibly cause shoaling above the authorized depth, as well as cause unnecessary turbidity within the harbor. Therefore this option is not feasible at this time.

Beach Replenishment. Beach replenishment would require coarse grain sand materials, which are of the greatest use in constructing land for Port terminals. Most of the sand available in the Port is of unsuitable grade to be used for beach replenishment. Beach replenishment using limited suitable material is not a feasible alternative because this material is needed for other beneficial uses within the Port, including construction of CDFs, expansion of shallow water habitat, and capping contaminated sediments.

POLB Western Anchorage Area Submerged Material Storage Site. The existing Port of Long Beach (POLB) Western Anchorage Area Submerged Material Disposal Site located in the outer Long Beach harbor offshore of the Navy mole has been previously used for temporary storage by the Port of Long Beach. This option would involve raising existing elevations of this area up to elevation –45 feet MLLW to provide over 2.0 mcy of disposal capacity. Use of this temporary storage area would allow this material to be used for other POLA and/or POLB purposes as needed for future port development or environmental enhancement projects. The

POLA coordinated with POLB related to use of this site as one of the disposal options, but POLB officials indicated they are not interested in temporarily placing POLA material at this site. Therefore this option is not feasible at this time.

Fill the Northwest Slip between Berths 129-136. This alternative would create up to 15 acres of new land within the existing Northwest Slip at Berths 129-136. This would require construction of a cross-dike at the ends of the slip. This is not feasible at this time because of the need to relocate major storm drains and possible impacts of other Port planning activities associated with this site, which would not be resolved in time for use as part of the Channel Deepening Project.

Pier 400 Landfill. Under this alternative, a portion of the existing Pier 400 SMSS surface adjacent to Pier 400 would be raised to create land. This alternative is eliminated because it is incompatible with current and reasonably foreseeable future operations of the existing container terminal on Pier 400. Further, disposal will likely cause water circulation and water quality impacts related to operation of the existing Terminal Island Treatment Plant outfall and is therefore not feasible.

West Channel Fill. The existing harbor bottom in the West Channel would be raised from -30 feet MLLW to -15 feet MLLW by placing fill material on the bottom. This option has been eliminated because of potential impacts to recreational boating as well as other existing and reasonably foreseeable uses of this area for Port operations.

Cap DDT Site off Palos Verdes. USEPA is evaluating capping the Palos Verdes Superfund Site and would likely need a source of sediment for the proposed cap. This alternative is eliminated because USEPA will not be ready for capping operations within the timeframe required for completion of the Channel Deepening Project.

Treat Contaminated Sediments to Create Marketable Products. Under this alternative, contaminated sediments would be collected, dried, and transferred to a treatment facility. A treatment facility would have to be sited, built, and permitted as there are currently none in the area. This option has been eliminated because there are not sufficient volumes of contaminated sediments to make this alternative economically feasible, and physical properties of such sediments are not compatible for future reuse as construction material.

2.5 Alternatives Evaluated in this SEIS/SEIR

The Proposed Action is to provide disposal capacity to complete the Channel Deepening Project. A reasonable range of alternatives to fulfill the Proposed Action has been developed in light of

NEPA requirements (40 C.F.R. § 1502.14 [a]) and CEQA Guidelines (Section 15126.6[b]) that would feasibly attain most of the basic objectives of the project, while substantially lessening or avoiding any significant impacts to the environment. The reasons for developing viable alternatives are provided below and details related to alternatives eliminated from further consideration are provided in Section 2.4.3.

Three alternatives have been developed as shown in Table 2-3 below. The alternatives include two action alternatives and the No Action Alternative. The action alternatives are comprised of different combinations of the disposal options presented in Section 2.4.2.

Table 2-3 Disposal Volume Summary for Proposed Action and Alternatives (mcy)

Disposal sites	Alternative 1: Port Development and Environmental Enhancement (mcy)	Alternative 2: Environmental Enhancement and Ocean Disposal (mcy)	Alternative 3: No Action
Berths 243-245 (a)	0.368 (b)	NA	NA
Northwest Slip	0.128 (b)	NA	NA
Eelgrass Habitat Area	0.800	0.800	NA
CSWH Expansion	1.700 (b)	1.700 (b)	NA
ARSSS (a)	NA	0.080	NA
Ocean Disposal Site LA-2	0.004	0.420 (c)	NA
Total Volume	3.000	3.000	NA

(a) Site would be used for material unsuitable for open water disposal.
(b) Additional dredging of 0.090 mcy for Berths 243-245, 0.050 mcy for Northwest Slip, and 0.040 mcy for CSWH is required for trenching dike foundations and is not included in the volumes presented in this table. These volumes of material would be disposed in their respective disposal sites, thereby decreasing the amount of Channel Deepening Project material able to be accommodated by each disposal site. Therefore, a total of approximately 0.18 mcy would be available to be placed as surcharge on Berths 243-245.
(c) This volume includes the 0.04 mcy of material from dike foundation trenching.

2.5.1 Alternative 1: Port Development and Environmental Enhancement

Alternative 1, Port Development and Environmental Enhancement, as summarized in Table 2-3 and shown in Figure 2-11, was developed with a focus on using dredge material for port development and environmental enhancement and would involve use and development of the following disposal sites: Berths 243-245, the Northwest Slip, CSWH Expansion, the Eelgrass Habitat Area, and LA-2. Disposal volumes and construction activities are described below. This alternative would result in new land at the Northwest Slip, a CDF at Berths 243-245 for disposal and capping of contaminated sediments, and approximately 50 acres of new shallow water habitat (as discussed in Section 2.4.2, although this alternative includes the 50-acre CSWH Expansion and the 40-acre Eelgrass Habitat Area, the Eelgrass Habitat Area would be constructed on approximately 16 acres of the proposed 50-acre CSWH Expansion and on approximately 24 acres of the existing CSWH Area, thus the total area of new shallow water habitat created under Alternative 1 would be 50 acres).

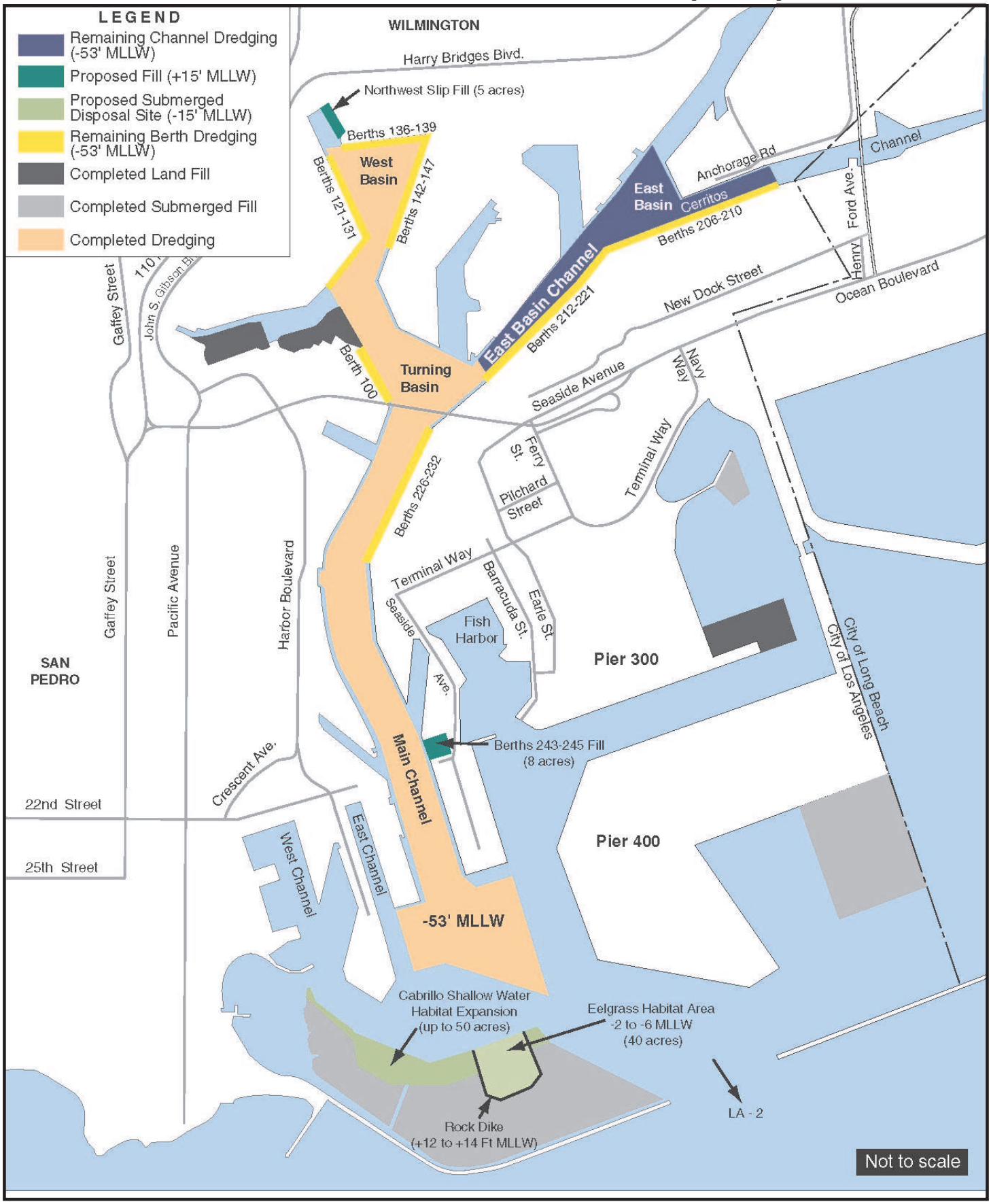


Figure 2-11
Alternative 1:
Port Development and Environmental Enhancement

Page 2 for color

Berths 243-245. The Berths 243-245, which consists of two open water slips covering approximately 8 acres, was part of the former Southwest Marine Shipyard site. The slips at Berths 243-245 contain contaminated sediments from past shipyard operations (Weston 2005). This alternative includes creating a CDF for the existing contaminated materials within Berths 243-245, as well as for placement of contaminated dredge material associated with completing the Channel Deepening Project. Approximately 0.368 mcy of dredge material would be disposed at this site, including: 0.080 mcy of contaminated sediments from the Channel Deepening Project and 0.288 mcy of clean sediments from the Channel Deepening Project. Approximately 0.18 mcy of clean dredge material would be placed as surcharge on the completed CDF to an approximate elevation of +30 feet MLLW. This volume of material is a result of the dredging that would be required for construction of the dikes at the Northwest Slip (0.05 mcy), Berths 243-245 (0.09 mcy), and the CSWH (0.04 mcy) disposal sites (i.e., because dike dredging material required for these sites would be placed in its respective disposal site, a corresponding volume of dredge material from the Channel Deepening Project would effectively be displaced). The total volume of Channel Deepening Project material that would be displaced from these three disposal sites would be available to be placed as surcharge on Berths 243-245. Over time, the material would densify, however, the timeframe for densification is unknown. Therefore, the surcharge material would remain in place until post project geotechnical investigation/monitoring determines the fill has been consolidated. As discussed in Chapter 3.14, in the future, after the material has consolidated and the Port determines a use for the site, the Port would prepare an appropriate CEQA document to develop the site. This disposal site is shown in Figure 2-3.

Details related to containment dike construction are presented in Section 2.6.1 and Figure 2-14.

Northwest Slip. A new 5-acre landfill would be constructed with approximately 0.128 mcy of dredge material from the Channel Deepening Project. Construction of a 5-acre landfill at the Northwest Slip (Figure 2-5) would allow realignment of the wharf roadway which would facilitate safer and more efficient truck and equipment movement. The additional area would also allow additional wheeled operations to occur for container movement instead of the less efficient Rubber Tired Gantry (RTG) operation. Details related to containment dike construction are presented in Section 2.6.1 and Figure 2-15.

CSWH Expansion. Approximately 1.700 mcy of dredge material would be used to raise the existing sea bottom, which ranges between –40 feet to –50 feet MLLW, up to a new elevation of -15 feet MLLW, creating approximately 50 acres of shallow water habitat. The additional expansion of the CSWH would increase the value of habitat in the outer harbor area. The

increased value would be credited towards the POLA mitigation bank (as described in Section 2.4.2) and could be used to offset impacts of future Port landfill development projects. Details related to containment dike construction are presented in Section 2.6.1 and Figure 2-16.

Eelgrass Habitat Area. Approximately 0.800 mcy of dredge material from the Channel Deepening Project would be used to raise the bottom of the CSWH from -15 feet MLLW to a new elevation ranging from –2 feet MLLW to –12 feet MLLW. Dike construction for this disposal site would not require trenching. This 40-acre area would be constructed over 16 acres of the proposed CSWH Expansion and over 24 acres of the existing CSWH area. This area would be used in the future to plant eelgrass to replace eelgrass that would be lost as a result of other future Port projects. Details related to containment dike construction are presented in Section 2.6.1 and Figure 2-17.

LA-2. Based on present estimates, approximately 0.004 mcy of material would remain after using the above disposal sites. This remaining material would be placed at the USEPA Ocean Disposal Site LA-2.

2.5.2 Alternative 2: Environmental Enhancement and Ocean Disposal

Alternative 2, Environmental Enhancement and Ocean Disposal, as summarized in Table 2-3 and shown in Figure 2-12 was developed with a focus on environmental enhancement related uses of the remaining material and does not include any disposal options associated with port development. Under this alternative, dredge material would be disposed at the CSWH, Eelgrass Habitat Area, LA-2 and the ARSSS. Disposal volumes and construction activities at the CSWH and Eelgrass Habitat Area would be identical to those described above for Alternative 1 in Section 2.5.1.

However under Alternative 2, 0.420 mcy of material would be disposed at LA-2 and approximately 0.080 mcy of contaminated material would be disposed at the existing ARSSS. No new land areas would be created at the Port under Alternative 2.

2.5.3 Alternative 3: No Action

Under the No Action Alternative, since all approved disposal sites have been completed, no further dredging would take place and the Channel Deepening Project would not be completed. Approximately 1.025 mcy of material within the federally-authorized channel and 0.675 mcy of berth dredging would remain to be dredged and disposed. In addition, the 0.815 mcy of surcharge on Southwest Slip Area would remain to be removed and disposed. The total volume

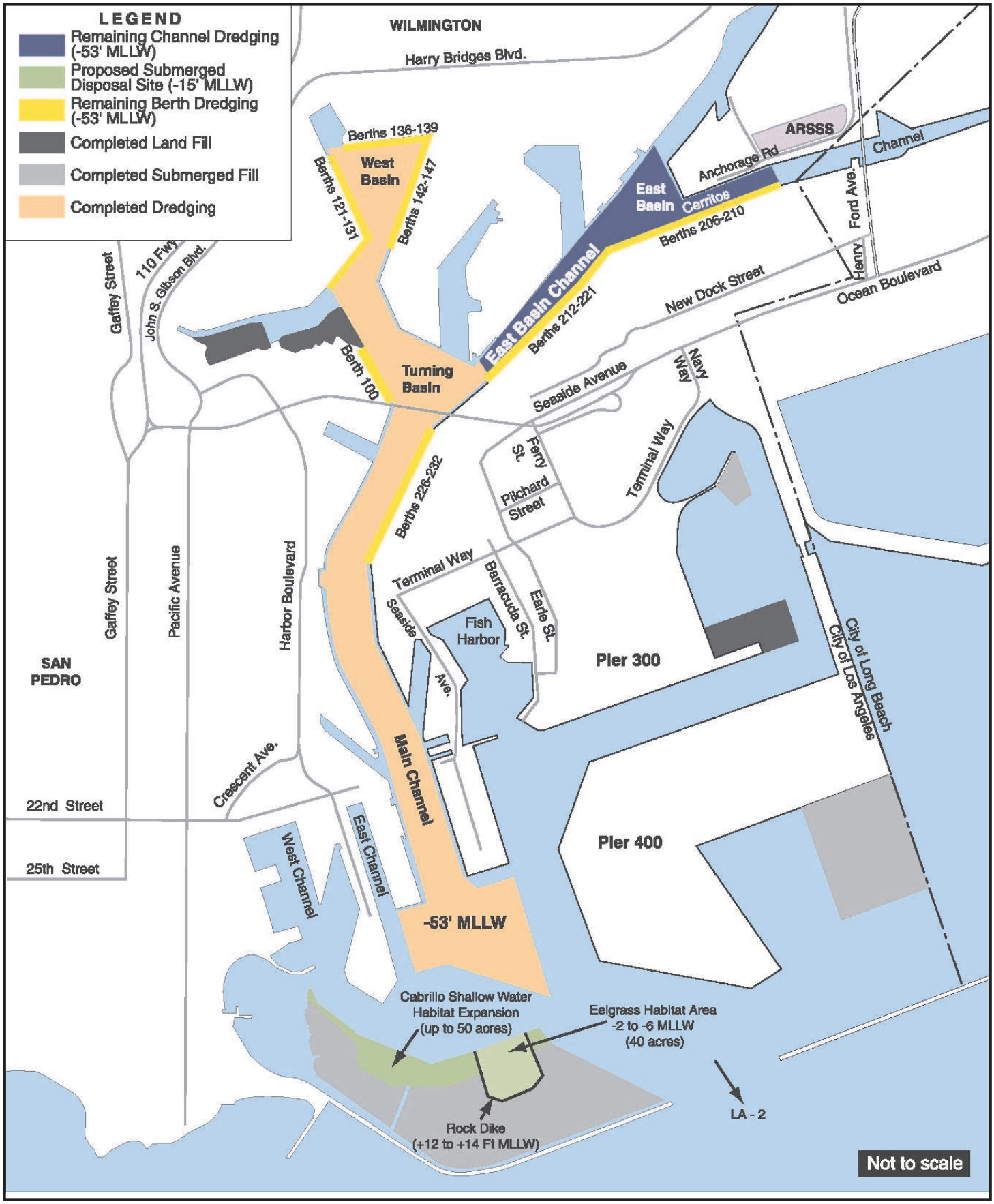


Figure 2-12
Alternative 2:
Environmental Enhancement and Ocean Disposal

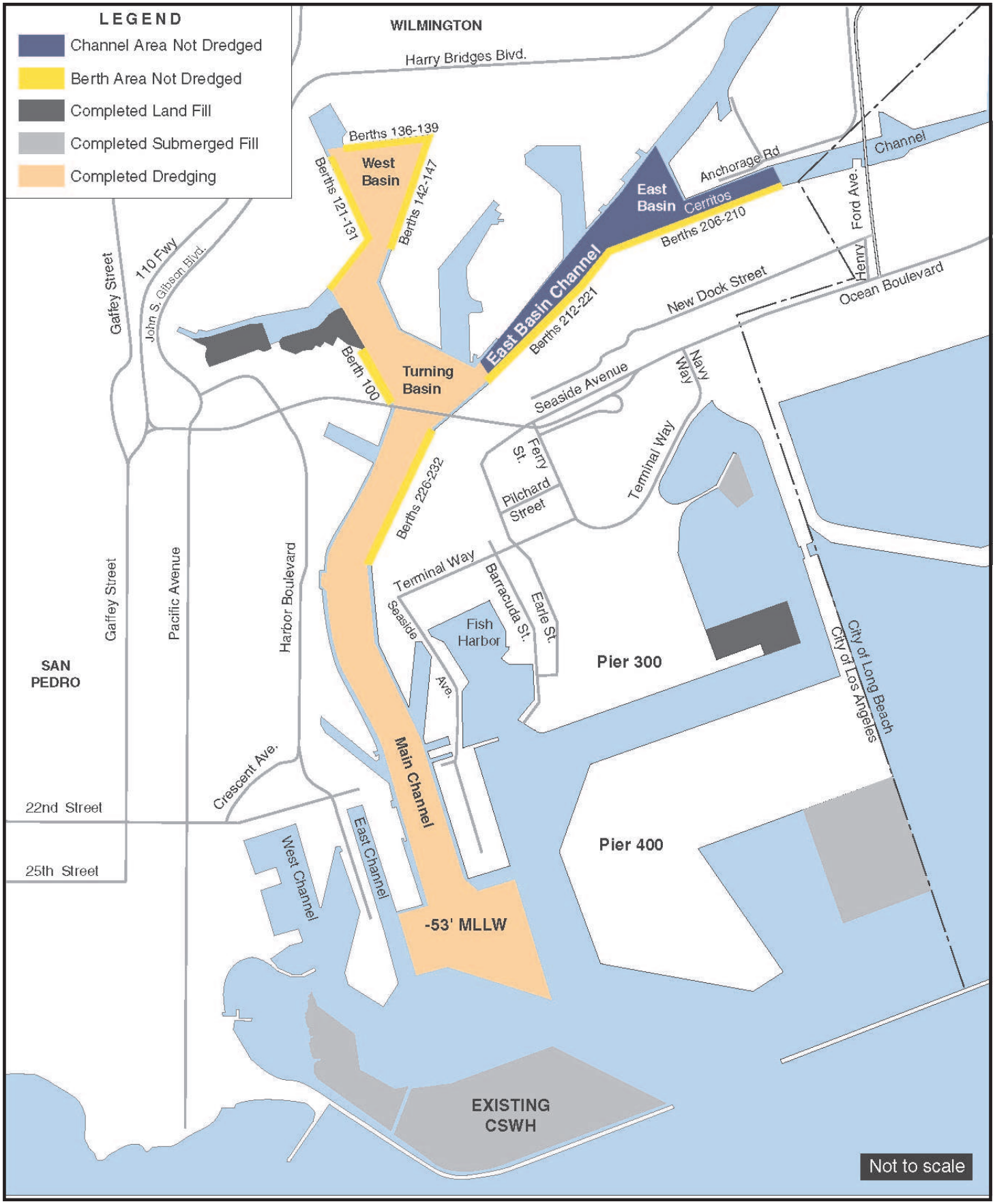


Figure 2-13
Alternative 3: No Action

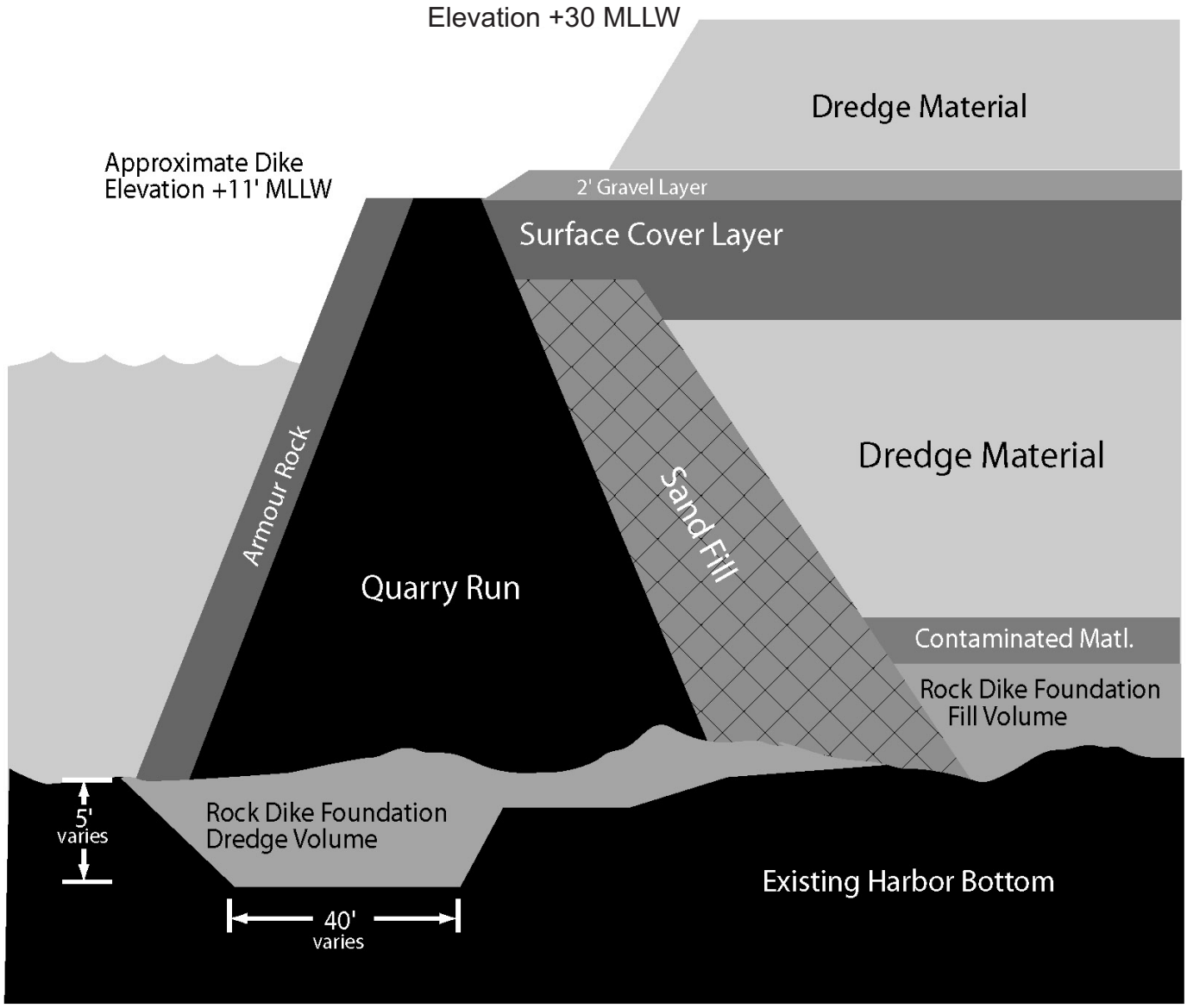


Figure 2-14
Berths 243-245 Cross-Section

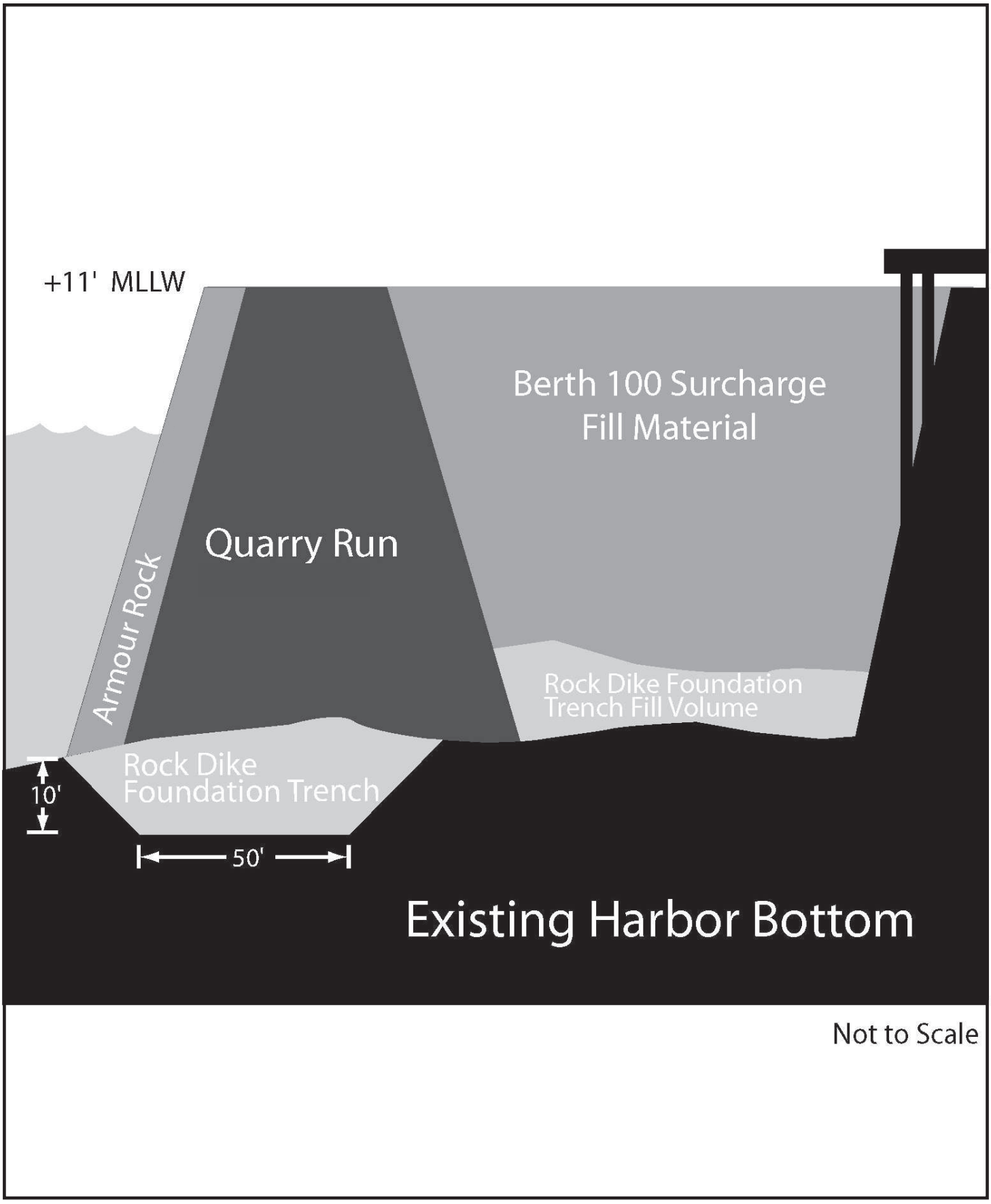


Figure 2-15
Northwest Slip Cross-Section

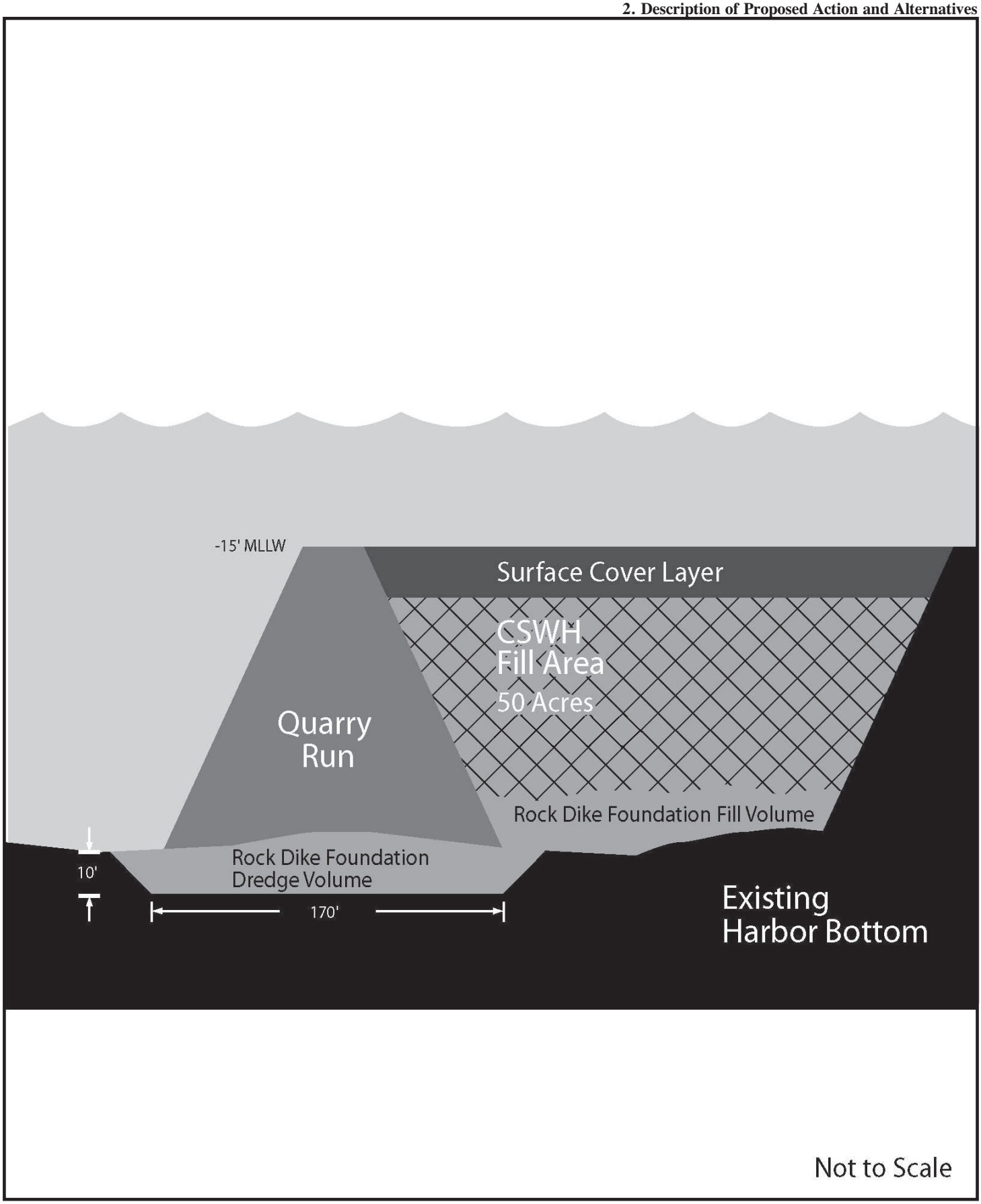


Figure 2-16
CSWH Expansion Area Cross-Section

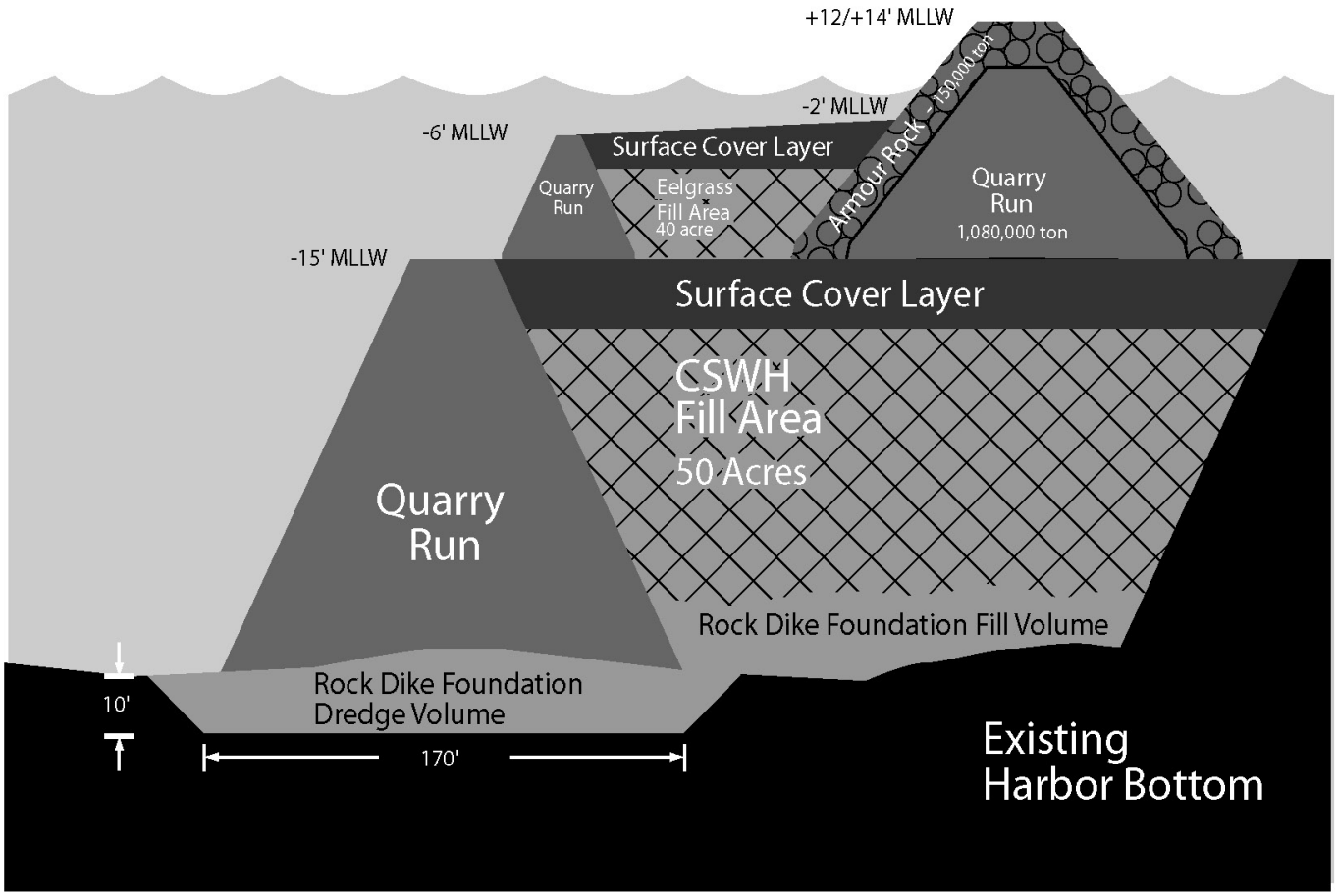


Figure 2-17
CSWH Expansion / Eelgrass Habitat Area Cross-Section

requiring removal is estimated at 2.515 mcy (in-situ). Additionally, the 0.080 mcy of contaminated dredge material would remain within the Main Channel of the Port.

Under this alternative, the primary goal of the Channel Deepening Project, to allow the latest generation of container vessels to access POLA terminals, would be limited to the terminal at Berths 100 and 144. Vessels would be restricted by the 45-foot depth available at all other berths and the undredged portion of the East Basin Channel and Cerritos Channel. The existing channel depth of –45 feet MLLW would result in continued restrictions on use of the new generation of container vessels.

A portion of the land created at the Southwest Slip would also not be able to be developed due to the remaining surcharge present there. This would preclude the potential use of this area for additional port capacity for container throughput as described in the December 2000 SEIS/SEIR and the July 2002 Supplemental EA.

2.6 Proposed Construction Methods and Schedule

This section describes details of constructing each fill site as well as the estimated schedule and equipment needs for each alternative.

2.6.1 Disposal Site Construction

Details related to construction of the fill sites are described below and summarized in table 2-4.

Table 2-4 Dike Construction Details

Location	Dredge Elevation (MLLW)	Dredge Material (mcy)	Dike Trenching Volume* (mcy)	Quarry Run Rock Construction (tons)	Revetment for Construction (tons)
Berths 243-245	-58 ft	0.368	0.090	270,000	20,000
Northwest Slip	-55 ft	0.128	0.050	350,000	25,000
CSWH Expansion	-15 ft	1.700	0.040	550,000	NA
Eelgrass Habitat Area	-10 ft	0.800	NA	1,200,000	170,000

* = Dike trenching volume would be used as fill within the disposal sites.
NA = Not Applicable

Berths 243-245 Disposal Site Construction Details

Construction would begin with demolition of the abandoned wharf structures within the slips. The dike trench dredging would take place by clamshell dredge and the dredged material would be placed in the CDF disposal site. Rock dike construction by barge and derrick barge crane would continue to -12 feet MLLW and sediments would be placed into the fill area, initially via bottom dump barge and then hydraulically as the fill area became too shallow to allow access via barge. As the sediment accumulates in the fill area, the dike walls would be increased in height until they broke the surface of the water. Weirs would then be used to drain the remaining water from the fill area. CDF construction would be consistent with the 401 WQC and/or waste discharge requirements for the project.

Figure 2-14 shows details related to the construction of the CDF and placement of contaminated dredge material at Berths 243-245. Approximately 0.090 mcy of sediment would be dredged to an elevation of approximately -58 feet MLLW for the foundation of the containment dike. This material would be used as fill within the Berths 243-245 disposal site. The capacity of this site is approximately 0.368 mcy.

About 270,000 tons of quarry run rock and 20,000 tons of rock revetments would be utilized for the construction of the dike. The rock dike would be constructed to an interim elevation (approximately -20 feet MLLW to -15 feet MLLW.) This interim rock dike would provide containment of the fill while still allowing hull clearance for bottom dump scows to place the contaminated material in the deepest area of the fill (approximately -47 feet MLLW.)

Subsequent to construction of the dike, approximately 0.080 mcy of contaminated dredge material would be disposed so contaminated sediments would not be dispersed in the open water. After disposal of contaminated material, the rock dike would be constructed to a final elevation of +11 feet MLLW. Approximately 0.198 mcy of clean dredged material would be disposed on top of the contaminated material. Approximately 0.180 mcy of clean dredge material would be deposited on the completed CDF as surcharge to an approximate elevation of +30 feet MLLW to promote densification of deposited dredge material. Bulldozers would be used for final grading of the surcharge. A surface cover layer of sand would be placed on the site. A contaminated sediment management plan would be developed in cooperation with the CSTF and other State and Federal agencies prior to moving and disposing of the contaminated sediments.

Northwest Slip Disposal Site Construction Details

Figure 2-15 shows details related to the construction of the Northwest Slip disposal site. Construction would begin by dredging approximately 0.050 mcy of material by clamshell dredge to create a foundation trench at an approximate elevation of -52 to -55 feet MLLW, for structural

stability of the dike. This material would be placed within the fill footprint prior to the construction of the dike. Construction of the dike would require approximately 350,000 tons of quarry run rock and 25,000 tons of rock revetment which would be placed by derrick barge crane. Upon completion of the containment dike, approximately 0.078 mcy of dredge material from the Berth 100 surcharge would be disposed by clamshell to an elevation of +11 feet MLLW for a total disposal volume of 0.128 mcy. This site does not require surcharge for densification because fill material for the Northwest Slip is coarse grained sand which densifies on its own, as opposed to the finer materials that would be placed in Berths 243-245.

CSWH Expansion Construction Details

Construction of the CSWH Expansion would begin with the construction of a dike to elevation -15 feet MLLW. Figure 2-16 shows construction related details of this disposal site. Initially, approximately 0.04 mcy of sediment would be dredged to an approximate elevation of -55 feet MLLW to create a foundation to stabilize the containment dike. This material would be disposed within the CSWH fill in addition to approximately 1.66 mcy of Channel Deepening dredge material for a total disposal volume of 1.70 mcy. Approximately 550,000 tons of quarry run would be used for the construction of the dike to elevation -15 feet MLLW. Fine grained fill would then be pumped into the site by pipeline to elevation -17 feet MLLW. Once completed, coarse grain cover would be placed by clamshell to the final elevation of -15 feet MLLW.

As per coordination with NOAA Fisheries, prior to construction, a construction monitoring plan will be developed to identify dredge areas to be utilized for construction. In addition, prior to construction a post-construction investigation program will be developed.

Eelgrass Habitat Area Construction Details

As shown in Figure 2-17, the Eelgrass Habitat Area would be constructed by placing a quarry run rock foundation within the existing and proposed CSWH areas and placing dredge material within the rock structure. This foundation would not require a dike foundation trench. The Eelgrass Habitat Area would be constructed in the shape of a polygon. In order to protect the Eelgrass Habitat Area from erosion from short period storm waves, a rock dike would be constructed around the perimeter of all south, east, and west facing sides of the Eelgrass Habitat Area (DMJM Harris, 2007). The rock dike crest elevation of the above-water sections will vary from +12 to +14 feet MLLW in order to provide protection from storm waves, which is consistent with other dikes and breakwaters within the Harbor. The dike on the north side would be constructed to an elevation of approximately -6 feet MLLW to maintain water circulation within the area.

Approximately 1,200,000 tons of quarry run and approximately 170,000 tons of armor stone would be used for dike construction and would be placed by derrick barge crane. Fine-grained[4] and coarse-grained fill would then be placed by clamshell and hydraulic pumping between elevation -8 feet MLLW and -4 feet MLLW. Once completed, a two-foot surface cover would be placed between -6 feet MLLW to -2 feet MLLW (sloping from lower elevation to higher elevation from north to south). The dike would result in removal of approximately 1.7 acres of open water.

The Port intends to enter into a mitigation banking agreement with the appropriate State and Federal Agencies to identify use of the Eelgrass Habitat Area. It is currently anticipated that other planned projects at POLA will require eelgrass replacement, and the site would be managed to mitigate those projects.

Ocean Disposal

Sediments would be clamshelled into barges and then transported and disposed directly to LA-2 by clamshell dredge. Disposal of 0.004 mcy of material under Alternative 1 would require approximately three barge trips to LA-2. Disposal of 0.420 mcy of material under Alternative 2 would require approximately 275 to 367 barge trips. Disposal of material at LA-2 would be consistent with the USEPA regulations for managing ocean dumping in accordance with the Marine Protection, Research, and Sanctuaries Act. This site is located approximately 5.8 miles south-southwest of the entrance to Los Angeles Harbor on the outer continental shelf margin.

ARSSS Construction Details

Sediments would be placed in barges by clamshell dredge and shipped to an offloading site at Shore Road. The material would be transferred by clamshell from the barge to a temporary bermed holding area and subsequently transferred to trucks for transport to the ARSSS, approximately 0.15 miles away, across Shore Road. Because dredged material has a high water content when first disposed, the Port implements various best management practices to prevent the material from spilling onto the road during transport, including only partially filling the trucks, sealing the backs of trucks to prevent leakage, washing truck tires before they leave the offloading site, and sweeping the roads on a regular basis.

2.6.2 Construction Equipment and Schedule

Alternative 1

In general, equipment operations would be consistent with USACE and POLA requirements recognizing applicable environmental and other requirements. A peak workforce of

[4] For Alternative 2, all fill would be coarse-grained.

approximately 75 personnel would be required to complete construction. Construction would occur 24 hours per day in three shifts: 7:00 a.m. to 3:00 p.m., 3:00 p.m. to 11:00 p.m., and 11:00 p.m. to 7:00 a.m. Construction workers would park at a staging area on Tuna Street in Fish Harbor Street. Construction equipment expected to be used for construction of Alternative 1 is presented in Table 2-5.

Table 2-5 Construction Equipment

Equipment Type	Estimated Number	Equipment Type	Estimated Number
Anchor Barge Winch	6	Generator	1
Backhoe	2	Grader	1
Barge Equipment	2	Haul Truck	12
Crew Boat	2	Main Generator - Clamshell Dredge (Electric)	2
Deck Generator - Clamshell Dredge	2	Main Hoist - Clamshell Dredge (Electric)	2
Derrick Barge Crane	2	Off-Road Truck	4
Derrick Hoist	2	Reel Barge	2
Derrick Winch	2	Scows	2
Dozer	2	Scrapers	5
Electric - Clamshell Dredge	2	Skiff	2
Electric - Hydraulic Dredge	2	Survey Boat	2
Electric Conveyor	2	Tug Boat s	6
Electric Pump	2	Water Truck	1
Front End Loader	2		

Project modifications would be constructed immediately after completion of the NEPA/CEQA process and approvals by POLA and USACE. It is estimated that construction could resume in the beginning of 2009 using the newly approved disposal areas, and is expected to occur 24 hours a day, seven days a week, and take approximately 15 months to complete, as presented in Table 2-6. If delay occurs due to approval process, mechanical constraints, or other reasons, project construction completion may be extended. In case of delay in completion of the project construction, the appropriate state and Federal resource agencies will be notified.

Table 2-6 Alternative 1 Construction Schedule

Proposed Project Component	Estimated Construction Schedule	
	Start	Finish
CSWH Expansion	January 2009	August 2009
Eelgrass Habitat Area	May 2009	December 2009
Berths 243-245	January 2009	March 2010
Northwest Slip	April 2009	February 2010
LA-2	March 2009	May 2009

Alternative 2

Similar to Alternative 1, a peak workforce of approximately 75 personnel would be required to complete construction. Construction would occur 24 hours per day in three shifts: 7:00 a.m. to 3:00 p.m., 3:00 p.m. to 11:00 p.m., and 11:00 p.m. to 7:00 a.m. Construction workers would park at a staging area on Tuna Street in Fish Harbor. Construction equipment expected to be used for construction of Alternative 1 is presented in Table 2-7.

Table 2-7 Construction Equipment

Equipment Type	Estimated Number	Equipment Type	Estimated Number
Anchor Barge Winch	1	Generator	1
Backhoe	2	Grader	1
Barge Equipment	2	Haul Truck (2)	12
Compactor	1	Main Generator - Clamshell Dredge (Electric)	1
Crew Boat	1	Main Hoist - Clamshell Dredge (Electric)	1
Deck Generator - Clamshell Dredge	1	Off-Road Truck	4
Derrick Barge Crane	1	Scows	2
Derrick Hoist	1	Scraper	5
Derrick Winch	1	Skiff	1
Dozer	1	Survey Boat	1
Electric - Clamshell Dredge	1	Tug Boat	6
Electric Conveyor	1	Water Truck	1
Electric Pump	1		

Project modifications would be constructed immediately after completion of the NEPA/CEQA process and approvals by POLA and USACE. It is estimated that construction could resume in the beginning of 2009 using the newly approved disposal areas, and is expected to occur 24 hours a day, seven days a week, and take approximately 17 months to complete, as presented in Table 2-8. If delay occurs due to approval process, mechanical constraints, or other reasons, project construction completion may be extended. In case of delay in completion of the project construction, the appropriate state and Federal agencies will be notified.

Table 2-8 Alternative 2 Construction Schedule

Proposed Project Component	Estimated Construction Schedule	
	Start	Finish
CSWH Expansion	January 2009	August 2009
Eelgrass Habitat Area	May 2009	December 2009
ARSSS	January 2009	April 2009
LA-2	December 2009	May 2010

2.7 Conclusions and Comparison of Alternatives

Based on the analysis of potential environmental impacts of the Proposed Action presented in Sections 3.1 through 3.13 of this SEIS/SEIR, this section summarizes the environmental impacts and effects of each alternative of the Proposed Action and provides a comparison of the environmental effects of the action alternatives of the Proposed Action.

2.7.1 Significant and Unavoidable Impacts

This Draft SEIS/SEIR has determined that implementation of Alternative 1 or Alternative 2 of the Proposed Action would result in significant impacts on:

- Air Quality and Meteorology, and
- Environmental Justice.

Both action alternatives have significant impacts on Air Quality and Meteorology because the air emissions from construction and operation could not be mitigated to less than significant even with the application of all feasible mitigation measures.

In addition, Alternative 1 and Alternative 2 would result in significant impacts to Environmental Justice as a result of disproportionate human health or significant environmental impacts on minority populations. These impacts would be specific to air quality; no other significant unavoidable adverse impacts have been identified that could result in a disproportionate effect on minority populations.

No feasible mitigation measures are available that would avoid these impacts or reduce impacts to less than significant levels. Therefore, potential impacts to these resource areas are considered significant and unavoidable.

2.7.2 Summary of Significant Impacts that Can Be Mitigated, Avoided, or Substantially Lessened

This Draft SEIS/SEIR has determined that implementation of Alternative 1 or Alternative 2 of the Proposed Action would result in significant impacts that can be mitigated to less than significance on:

- Biological Resources;
- Land Use; and

- Noise.

Placement of fill at Berths 243-245, the Northwest Slip, and the Eelgrass Habitat Area, for implementation of Alternative 1, would result in a permanent loss of aquatic habitat, a significant impact on Biological Resources that would be mitigated to a less than significant level by the application of existing habitat mitigation credits (see Section 3.3). Placement of fill at the Eelgrass Habitat Area, for implementation of Alternative 2, would also result in a permanent loss of aquatic habitat that would be mitigated to a less than significant level by application of existing habitat mitigation credits. Additionally, although Alternative 1 and 2 would have less than significant impacts to threatened and endangered species, construction in the immediate vicinity of the CSWH has the potential to adversely affect California least tern foraging by causing a decline in the availability of forage fish or the ability of least terns to find forage fish during the nesting season due to construction-related turbidity in these areas. Based on the relatively small area of impact, impacts would be less than significant, nevertheless, mitigation measures are recommended to ensure that construction activities would not adversely affect California least tern.

Under Alternative 1, construction activities would temporarily restrict land and water-based uses at several berths at the Northwest Slip. However, with implementation of mitigation measures, impacts to these areas and uses would be less than significant.

Construction activities associated with Alternative 1 and Alternative 2 would have significant noise impacts, respectively, to sensitive receptors located near Berths 243-245 and the ARSSS. However, mitigation measures would reduce impacts to less than significant levels.

2.7.3 Summary of Less than Significant Impacts

Based on the environmental review in this Draft SEIS/SEIR, as summarized in Table S-2, no significant impacts in the following environmental issue areas are expected from implementation of Alternative 1 or Alternative 2 of the Proposed Action:

- Aesthetics and Visual Resources
- Cultural Resources
- Geology
- Ground Transportation
- Hazards and Hazardous Materials

- Marine Transportation
- Recreation
- Socioeconomics
- Utilities
- Water Quality and Oceanography

2.7.4 Cumulative Impacts

As discussed in detail in Chapter 6 of this SEIS/SEIR, the Proposed Action was analyzed in conjunction with other related projects in the area for potential to contribute to significant cumulative impacts. Alternative 1 and Alternative 2 of the Proposed Action would result in cumulatively considerable impacts for Air Quality and Meteorology. Neither alternative of the Proposed Action would contribute to cumulatively considerable impacts for any other resource areas.

2.7.5 Beneficial Impacts

Both Alternative 1 and Alternative 2 would result in several long-term beneficial effects within the Port. As described below, Alternative 1 would result in more beneficial impacts than Alternative 2. Both Alternative 1 and Alternative 2 would result in the following beneficial effects:

1. Completion of the Channel Deepening Project to the approved depth of -53 feet MLLW;
2. Improved water quality through removal of existing contaminated sediments from the Main Channel and in areas that remain to be dredged in the vicinity of Berths 127-131 and Berths 136-140;
3. Eliminated potential for bioaccumulation of existing heavy metals and organochlorides within the Main Channel and in areas that remain to be dredged in the vicinity of Berths 127-131 and Berths 136-140;
4. Increased habitat value at the CSWH; and
5. Increased habitat value for a number of fish species at the new Eelgrass Habitat Area.

Because Alternative 1 would create a new land area at the Northwest Slip and cap existing contaminants at Berths 243-245 (which would remain in place under Alternative 2), it would have the following additional beneficial effects that would not occur under Alternative 2:

1. Improved water quality through capping of existing contaminated sediments within Berths 243-245 in a new confined disposal facility at Berths 243-245;
2. Eliminated potential for bioaccumulation of existing heavy metals and organochlorides at Berths 243-245; and

3. Improved safety for truck turning movements at the Northwest Slip.

2.7.6 Recommended Alternative

As discussed above in Section 2.7.1 through 2.7.5 and summarized in Table S-2 (presented in the Summary), Alternative 1 and Alternative 2 would result in nearly identical temporary, adverse environmental impacts. In addition, as discussed above in Section 2.7.5, both Alternative 1 and Alternative 2 would result in several long-term beneficial impacts, primarily through removal of contaminated sediments from the Main Channel and in areas in the vicinity of Berths 127-131 and Berths 136-140. However, because Alternative 1 would also cap existing contaminants at Berths 243-245 (contaminants which would remain in place under Alternative 2), it would result in more beneficial effects to water quality and biological resources than Alternative 2. Sediments that would be capped in the CDF are contaminated with mercury, lead, zinc, PCBs, TBT, and PAHs. Leaving these contaminants in place would likely continue to result in adverse effects to benthic infaunal organisms and their predators. Additionally, creation of a 5-acre fill at the Northwest Slip would allow for realignment of the existing wharf roadway which would facilitate safer and more efficient truck and equipment movement. Therefore, Alternative 1 would result in several more long-term beneficial impacts than Alternative 2 and is considered to be environmentally superior to Alternative 2.

Additionally, a comparison of how each Alternative satisfies the project objectives presented in Section 2.2 is presented below in Table 2-9. Alternative 1 would meet all five project objectives, Alternative 2 would meet three of the five project objectives, and Alternative 3 would meet none of the project objectives.

Table 2-9 Comparison of How Alternatives Meet Project Objectives

Objective	Alternative 1	Alternative 2	Alternative 3
Complete Channel Deepening Project	Yes	Yes	No
Provide Additional Land	Yes	No	No
Environmental Enhancement	Yes	Yes	No
3.0 mcy of Disposal Capacity	Yes	Yes	No
Dispose Contaminated Sediments in CDF	Yes	No	No

Therefore, based on a comparison of all adverse and beneficial impacts and how each alternative would meet the project objectives, Alternative 1 is the recommended alternative because it would result in more beneficial operational and environmental effects at the Port of Los Angeles than Alternative 2 or Alternative 3, and because Alternative 1 would meet more of the project objectives than Alternative 2 and Alternative 3.